STATE OF CALIFORNIA

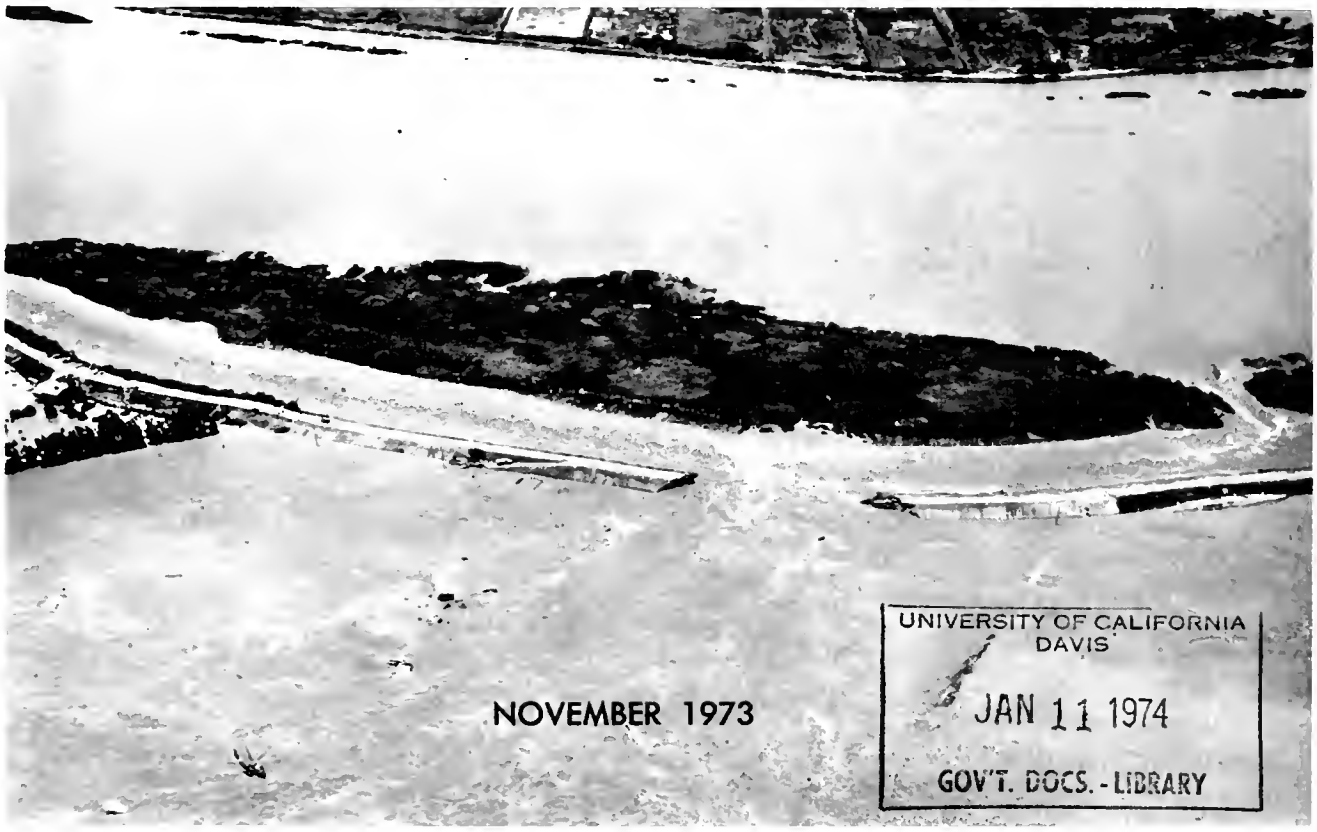
The Resources Agency

Department of Water Resources

BULLETIN No. 69-72

CALIFORNIA HIGH WATER

1971-1972



NOVEMBER 1973

NORMAN B. LIVERMORE, JR.
Secretary for Resources
The Resources Agency

RONALD REAGAN
Governor
State of California

JOHN R. TEERINK
Director
Department of Water Resources

COVER PHOTOGRAPH

A levee break on June 21, 1972, caused flooding of the Brannan-Andrus Islands in the Sacramento-San Joaquin Delta.
(DWR Photo No. 4243-41)

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FOREWORD

In its coverage of the 1971-72 water year, Bulletin No. 69-72 describes precipitation, runoff, flooding, and the general weather patterns that precede and coincide with storm periods. The Bulletin also includes tabulations of precipitation comparisons and peak streamflows and stages, hydrographs of streamflow and reservoir operations, and weir overflow graphs.

Data for this Bulletin, which is the tenth in an annual series, were supplied by the National Weather Service, the U. S. Geological Survey, the U. S. Army Corps of Engineers, the U. S. Bureau of Reclamation, and many other agencies, both public and private. Their cooperation is greatly appreciated.

John R. Teerink, Director
Department of Water Resources
The Resources Agency
State of California
October 10, 1973

STATE OF CALIFORNIA
Ronald Reagan, Governor

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Norman B. Livermore, Jr.
Secretary for Resources

DEPARTMENT OF WATER RESOURCES
John R. Teerink, Director

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ABSTRACT

The water year 1971-72 was dry; California received only 50 percent of normal annual precipitation. By the end of May, the water year had been established as the driest of record at Red Bluff; the second driest near Folsom Dam, Fresno, and Bakersfield; and the third driest near Shasta Dam.

While most of the State underwent one of the driest seasons of record, the Smith River Basin experienced the second and third highest flood stages of record. Flood-producing storms hit the north coastal part of the State from January 18 to 27 and from February 22 to March 3.

A significant storm in the south coastal area between December 22 and 28 caused local flooding and mudslides. Flows in Carpinteria Creek on the coast of Santa Barbara County exceeded the previous record flood flows of January 1969.

June and August brought severe thunderstorms and localized flash flooding to the lower San Joaquin Valley. However, the only major flood event of the year for the Central Valley area was a levee failure on Brannan-Andrus Islands in the Sacramento-San Joaquin Delta.

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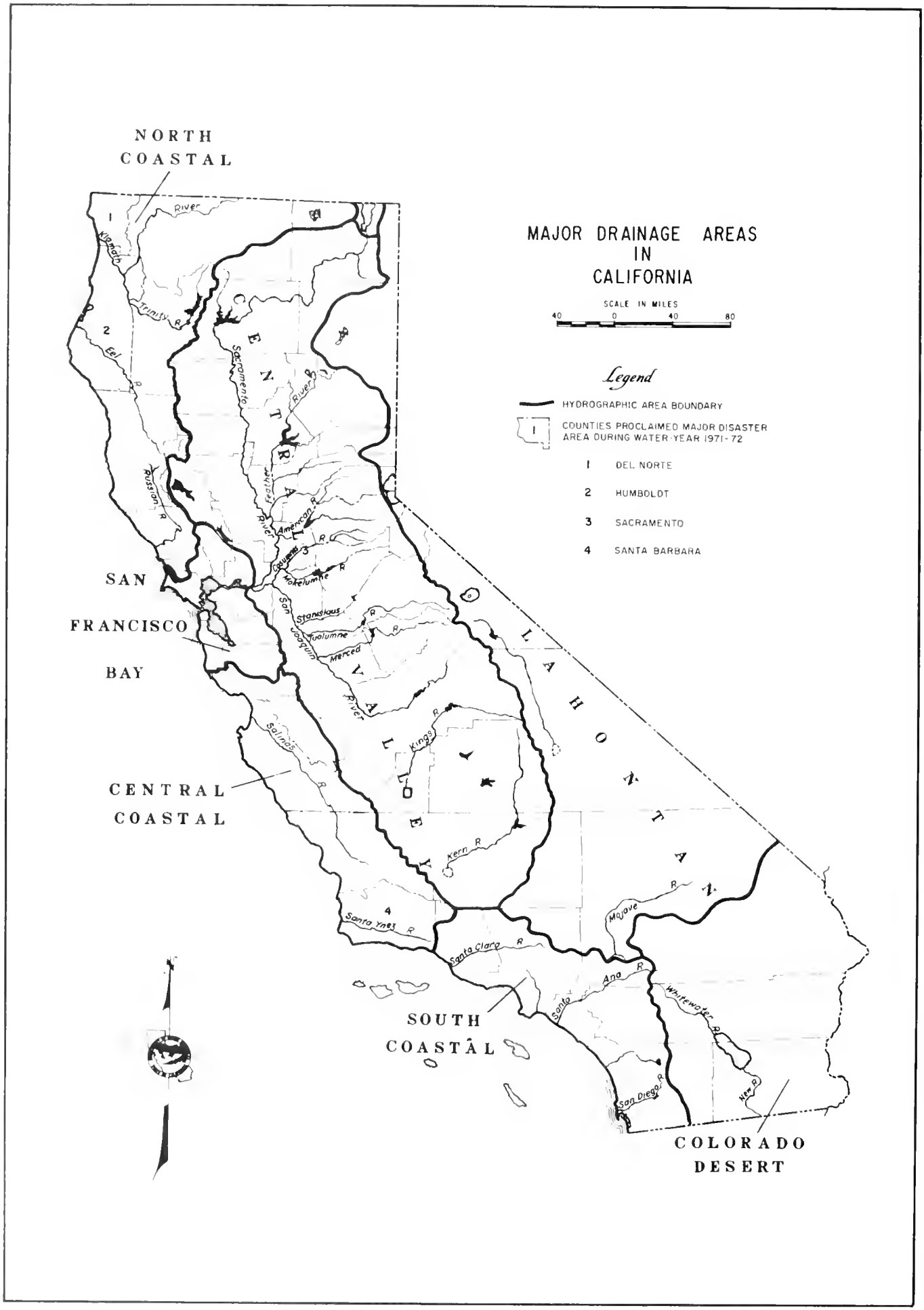

NORTH COASTAL
SAN FRANCISCO BAY
CENTRAL COASTAL
SOUTH COASTAL
COLORADO DESERT
MAJOR DRAINAGE AREAS IN CALIFORNIA
SCALE IN MILES
40 0 40 80
Legend
HYDROGRAPHIC AREA BOUNDARY
COUNTIES PROCLAIMED MAJOR DISASTER AREA DURING WATER-YEAR 1971-72
1 DEL NORTE
2 HUMBOLDT
3 SACRAMENTO
4 SANTA BARBARA
Klamath River
Trinity R.
Eel R.
Russian R.
Sacramento River
Feather River
American R.
Cosumnes R.
Mokelumne R.
San Joaquin River
Stanislaus R.
Tuolumne R.
Merced R.
Kings R.
Salinas R.
Kern R.
Santa Ynez R.
Santa Clara R.
Santa Ana R.
San Diego R.
Mojave R.
Whitewater R.
New R.

FIGURE 2

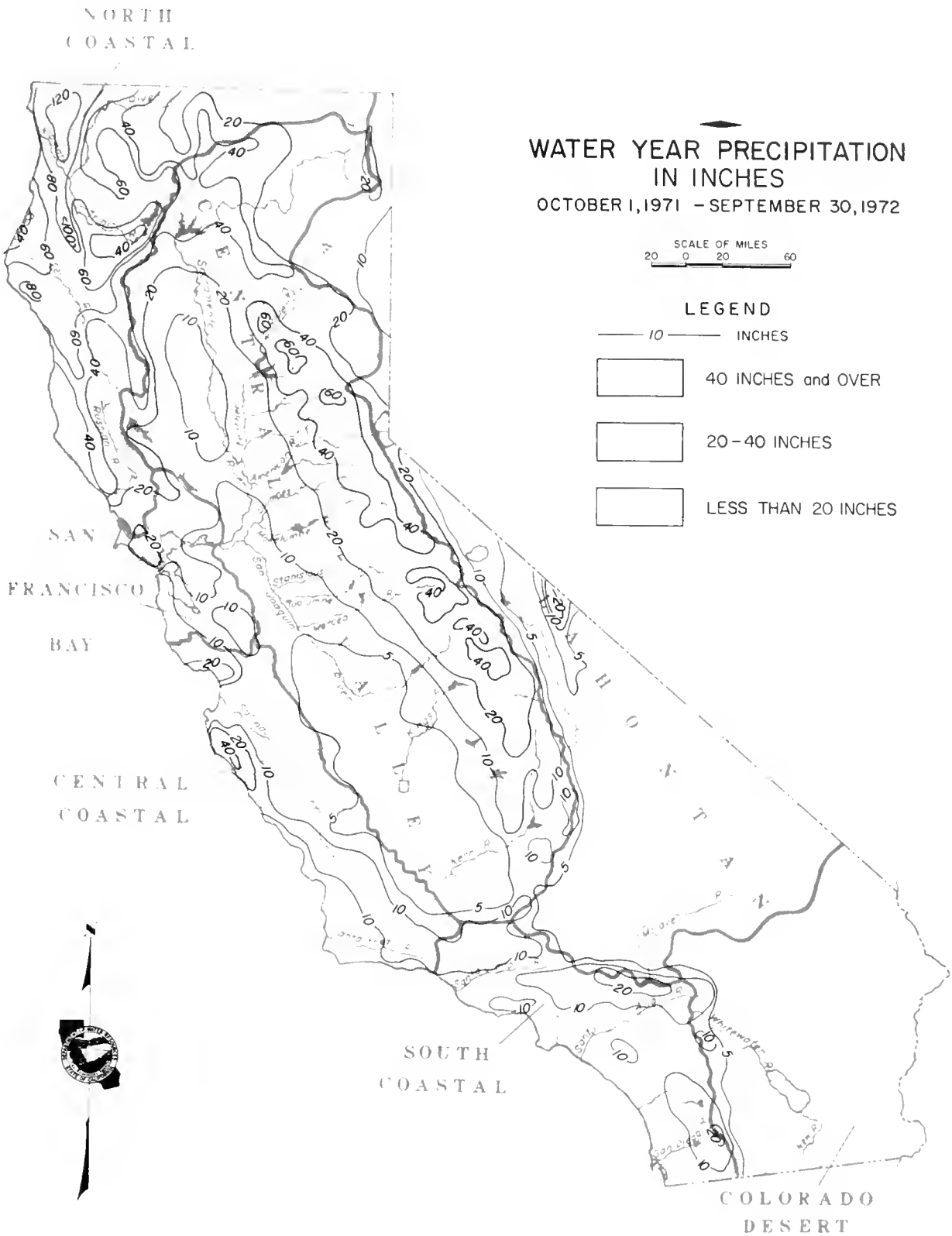
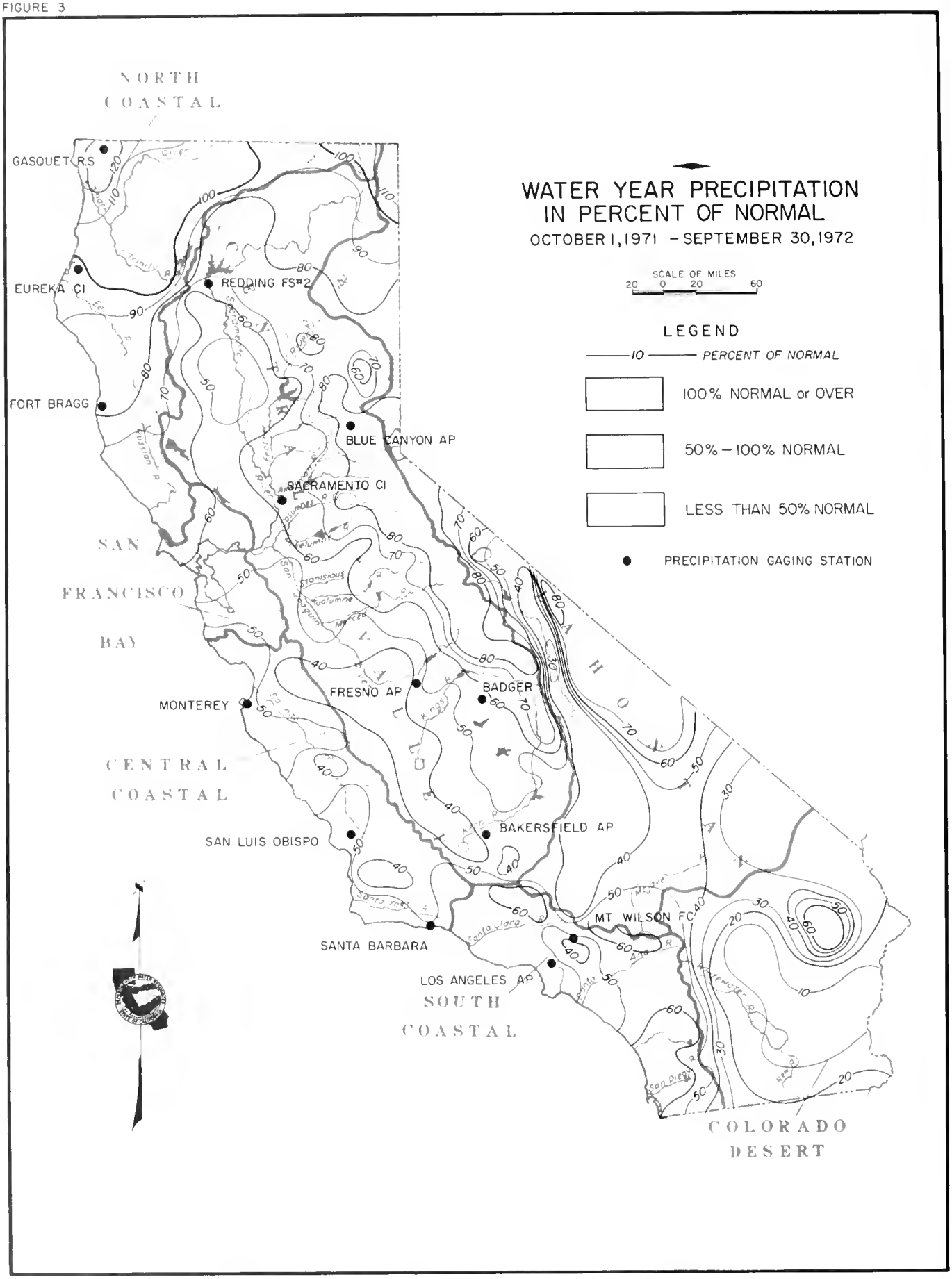

NORTH
COASTAL
SAN
FRANCISCO
BAY
CENTRAL
COASTAL
SOUTH
COASTAL
COLORADO
DESERT
WATER YEAR PRECIPITATION
IN INCHES
OCTOBER 1, 1971 - SEPTEMBER 30, 1972
SCALE OF MILES
20 0 20 60
LEGEND
10 INCHES
40 INCHES and OVER
20-40 INCHES
LESS THAN 20 INCHES

FIGURE 3


NORTH COASTAL
GASQUET R.S
EUREKA CI
REDDING FS#2
FORT BRAGG
BLUE CANYON AP
SACRAMENTO CI
SAN FRANCISCO BAY
MONTEREY
FRESNO AP
BADGER
CENTRAL COASTAL
SAN LUIS OBISPO
BAKERSFIELD AP
MT WILSON FC
SANTA BARBARA
LOS ANGELES AP
SOUTH COASTAL
COLORADO DESERT
WATER YEAR PRECIPITATION IN PERCENT OF NORMAL
OCTOBER 1, 1971 - SEPTEMBER 30, 1972
SCALE OF MILES
20 0 20 60
LEGEND
10 PERCENT OF NORMAL
100% NORMAL or OVER
50% - 100% NORMAL
LESS THAN 50% NORMAL
PRECIPITATION GAGING STATION

INTRODUCTION

High water events were notably scarce in California during the water year from October 1, 1971, through September 30, 1972. The winter season was generally characterized by below-normal precipitation in the Sierra Nevada. Because of these weather patterns, runoff to the major rivers and streams was generally well within channel capacities, while a nearly normal water supply in the upstream storage reservoirs was maintained.

Another characteristic of the season was the concentration of storms in the extreme northern portion of the State. This pattern produced two major floods on the Smith River in Del Norte County and local flooding and mudslides in the northern portion of Humboldt County. Typical of the season's erratic precipitation pattern was the storm that dumped nearly 24 inches of rain in the Smith River Basin in January and produced the second highest flood stage of record near Crescent City, yet produced only about 4½ inches of rain at Redding, only about 1 inch at Sacramento, and a trace at Bakersfield.

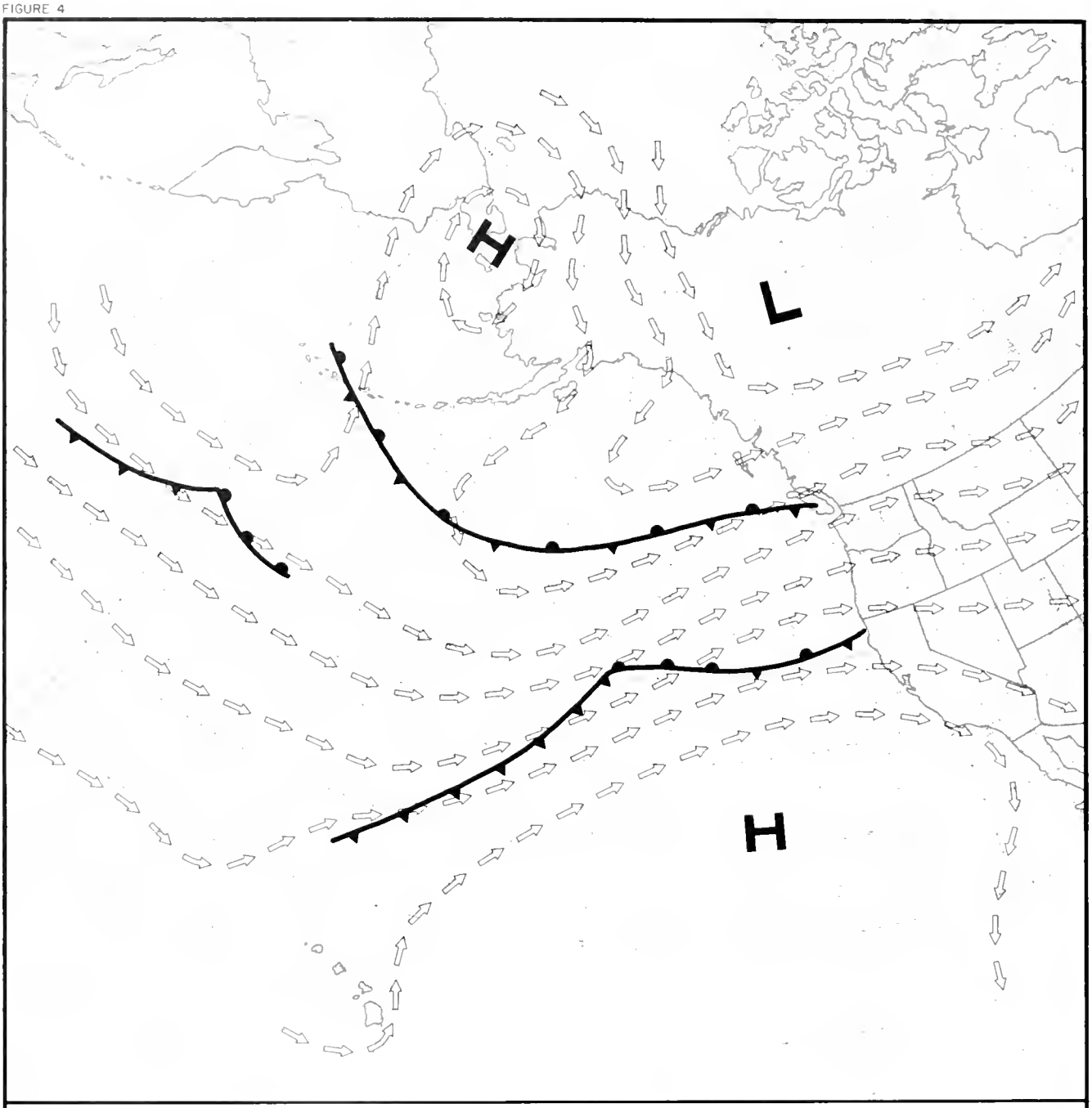
Untypical of the water year was a storm that struck the South Coastal Area in late December, producing massive traffic tie-ups along the highways over the Tehachapi Mountains, local flooding in Los Angeles, and flash floods along the Santa Barbara coast. Also contrary to the general pattern of the water year were severe thunderstorms over the southern part of San Joaquin Valley in June and August.

An unexpected event for any year was the flood that occurred on June 21, 1972, when a levee failed in the Sacramento-San Joaquin Delta, inundating low-lying Brannan-Andrus Islands. The failure occurred during moderate tides and low flows in the rivers. Suits totalling over $50 million were subsequently filed on behalf of the flood victims.

Table 1: PRECIPITATION AMOUNTS AT SELECTED STATIONS DURING WATER YEAR 1971-72

Station	Elevation	Total Precipitation-Selected Storms (In Inches)				Maximum One-Day Amounts	
		November 22-30	December 21-29	January 17-28	February 22-March 3	Day	Amount
North Coastal Area							
Gasquet RS	384	10.16	5.72	23.66	26.70	3-11	8.58
Eureka CI	43	2.30	2.08	7.40	7.02	1-21	2.49
Fort Bragg	80	1.64	1.84	4.43	5.77	1-21	1.17
Sacramento Valley Area							
Redding FS #2	580	2.81	2.61	4.49	4.04	11-28	1.51
Blue Canyon AP	5,280	2.51	8.46	6.38	8.97	12-22	2.72
Sacramento CI	19	0.16	3.94	1.07	0.26	12-24	0.93
San Joaquin Valley Area							
Badger	3,030	0.32	5.19	1.05	0.0	--	--
Fresno AP	328	0.07	1.96	0.36	Trace	12-27	0.63
Bakersfield AP	475	Trace	0.98	Trace	0.05	6-07	1.09
Central Coastal Area							
Monterey	345	0.76	3.10	1.23	0.25	12-25	0.98
San Luis Obispo	315	0.14	6.06	1.03	0.15	12-27	1.45
Santa Barbara	5	0.0	7.16	0.12	0.0	12-27	1.96
South Coastal Area							
Mt. Wilson FC	5,709	0.0	9.87	Trace	0.0	12-24	3.0
Los Angeles AP	105	0.0	5.17	0.09	0.13	12-27	2.25

FIGURE 4



STREAMLINES OF WINDFLOW AT THE 500mb LEVEL (About 18,000 Feet)

OCCLUDED FRONT (Cold Front Overtakes and Lifts Warm Front)

COLD FRONT (Cold Air Replaces Warm Air)

WARM FRONT (Warm Air Replaces Cold Air)

STATIONARY FRONT (Slaping Frontal Surface Moves Very Little or Remains In Same Place)

WEATHER MAP FOR 1600 PST JANUARY 21, 1972

WEATHER PATTERNS OF THE 1971-72 SEASON

October 1971: The latter half of the month showed some promise of precipitation when the hemispheric flow pattern in the upper atmosphere brought a trough of low pressure near the West Coast that sent a series of storms across California. Despite these storms, however, precipitation for the entire State for October was below normal, except along the southern coastal area.

November 1971: The flow pattern had a strong blocking high* pressure center in the central Atlantic Ocean and a zonal flow over the Pacific Ocean. A sequence of storm systems from the Pacific brought above-normal precipitation to California from November 9 to 14 and again from November 23 to 30 in the north coastal area and in the Siskiyou Mountains and the northern Sierra Nevada Range. The monthly accumulation at Eureka, for example, was 138 percent of normal.

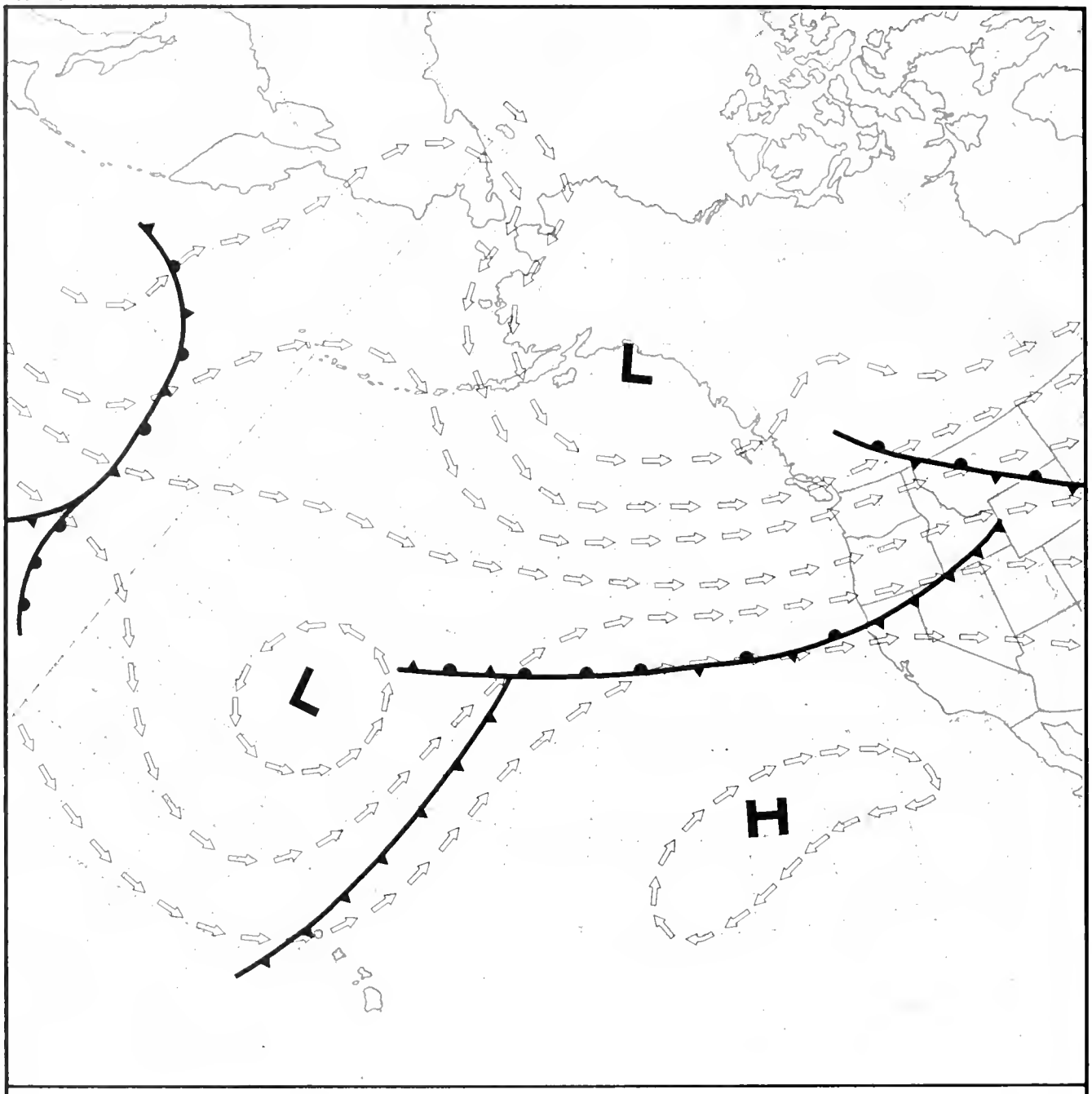
December 1971: This was the only month during the season when precipitation reached the southern half of the State. The rainy periods, especially in the northern half, occurred in the first half of the month and from December 21 through 29. The mean flow pattern during December consisted of a trough of low pressure over the western United States, causing a track of storm systems over California that made this a particularly cold, wet month. Monthly precipitation totals were above normal, except in the northern Coast Range and in the low desert. A significant storm occurred from December 21 to 29 along the coast between Santa Barbara and Los Angeles, causing local flooding and mudslides.

January 1972: Precipitation was below normal, except along the most northern coastline, which experienced a significant flood-producing storm from January 17 to 28. Weather conditions at the time formed the classic California flood-producing pattern: a blocking high pressure center over western Alaska and the Bering Sea, a low pressure center over the Gulf of Alaska, and a stream of warm, moist air flowing from southern latitudes lying well south of the block that met the cold air circulating around the Gulf low-pressure center. The onshore flow over Northern California was strong, and copious orographic precipitation occurred. While the rainy period spanned 10 to 11 days, the heaviest precipitation fell in a three-day period, January 20-22. A weather map for January 21, 1972 is shown on Figure 4. Statistics on rainfall amounts are given in the following section, "Rainfall Runoff". An isohyetal map for the north coastal area for January 17 through 28 is shown on Figure 6.

February and March 1972: These months are customarily expected to continue the usual winter pattern of rainfall at low elevations and an accumulating snowpack at high elevations. However, in 1972 these months proved to be a disappointment. Statewide precipitation was below normal and snowpacks at mountain stations were as much as 6 to 7 inches less than normal. Precipitation occurred from February 4 to 6 and from February 22 to March 3. During the second period, precipitation was heaviest in the northern half of the State, and it weakened to negligible amounts in the southern half. The confluence of warm and cold air masses over Oregon and Northern California

*Blocking high (or blocking anticyclone) is any high pressure center which remains nearly stationary or moves slowly in comparison to the normal west-to-east motion upstream from its location. The high effectively blocks, or impedes, the movement of migratory low pressure centers (or cyclones) across the latitudes of the blocking high.

FIGURE 5



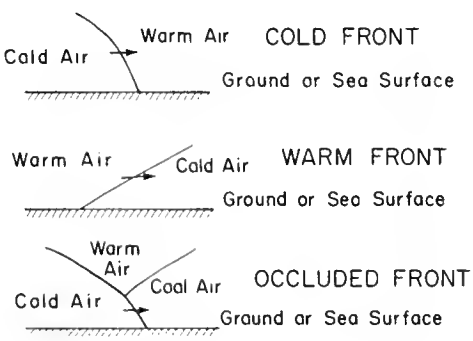
STREAMLINES OF WINDFLOW AT THE 500 mb LEVEL

OCCLUDED FRONT

COLD FRONT

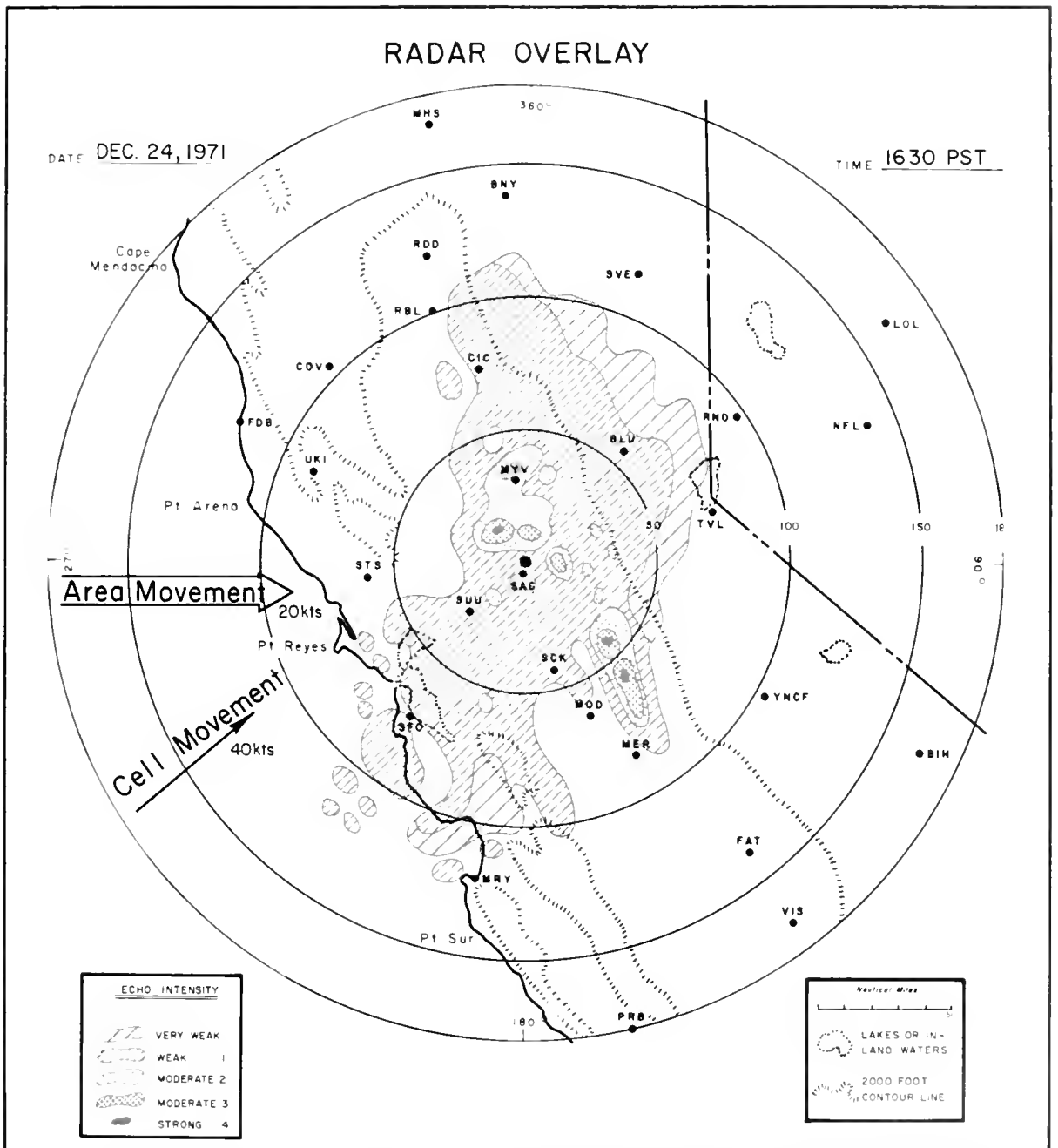
WARM FRONT

STATIONARY FRONT



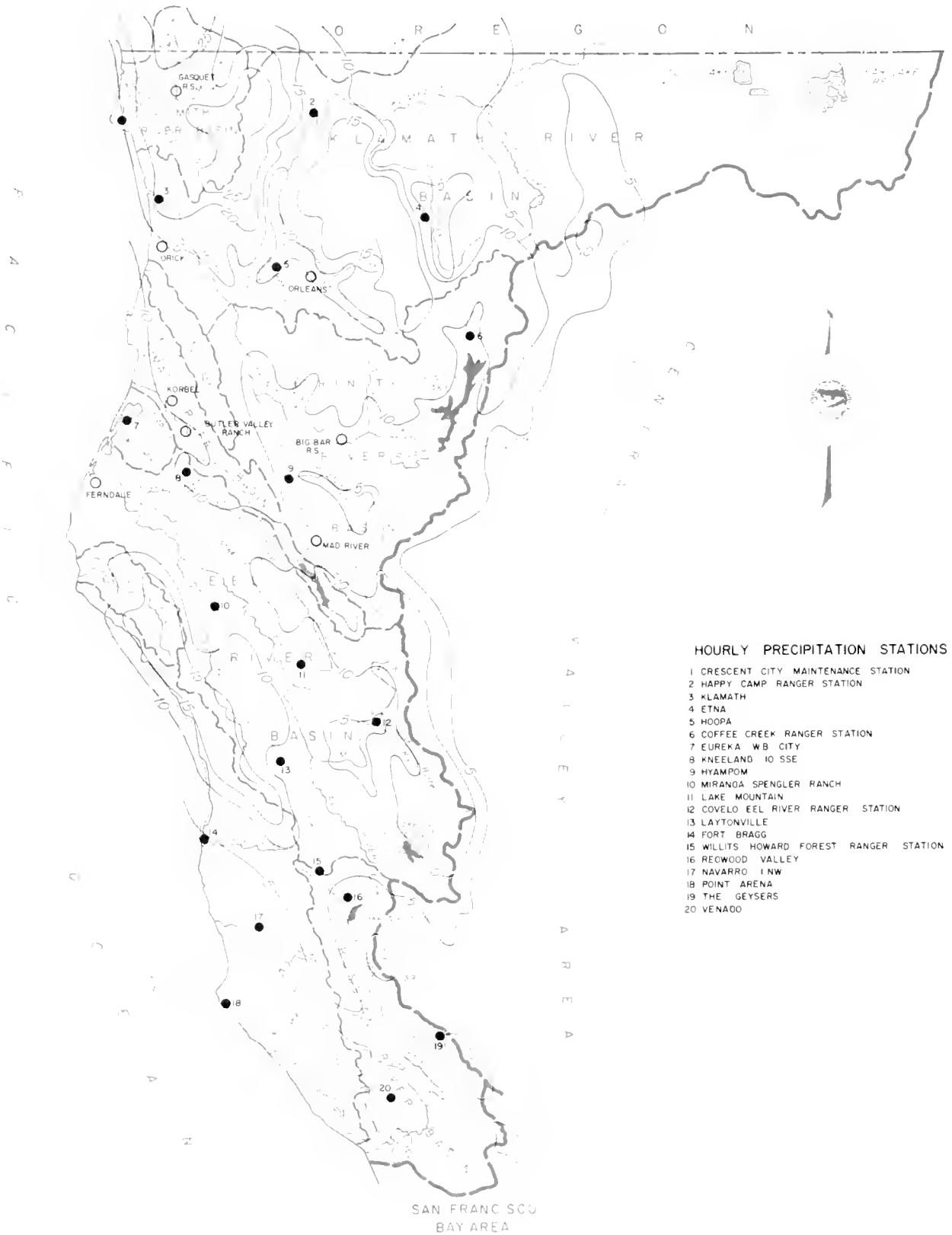
WEATHER MAP FOR 1600 PST MARCH 2, 1972

caused strong orographic release of precipitation over the coastal mountain ranges of California. The flow pattern of the atmosphere over the eastern Pacific at that time closely resembled the January pattern that also brought heavy rains. A weather map for March 2, 1972 is shown on Figure 5. An isohyetal map for the north coastal area covering the period February 22 through March 3, 1972 is shown on Figure 7.



An example of a radar overlay from the National Weather Service weather radar at Sacramento showing the pattern of rain intensity at 1630 PST December 24, 1971 with the passage of a moderately strong cold front through the Sacramento Valley. This front brought 1.51 inches of rainfall to the downtown precipitation gage at Sacramento over a 32-hour period. The intensity designations refer to the rainfall intensities as measured by the return echo from the raindrops--the echo intensity "4" shown northwest of Sacramento was a strong cell located over Knights Landing.

FIGURE 6



HOURLY PRECIPITATION STATIONS

1 CRESCENT CITY MAINTENANCE STATION
2 HAPPY CAMP RANGER STATION
3 KLAMATH
4 ETNA
5 HOOPA
6 COFFEE CREEK RANGER STATION
7 EUREKA WB CITY
8 KNEELAND 10 SSE
9 HYAMPOM
10 MIRANDA SPENGLER RANCH
11 LAKE MOUNTAIN
12 COVELO EEL RIVER RANGER STATION
13 LAYTONVILLE
14 FORT BRAGG
15 WILLITS HOWARD FOREST RANGER STATION
16 REDWOOD VALLEY
17 NAVARRO 1 NW
18 POINT ARENA
19 THE GEYSERS
20 VENADO

LEGEND

● HOURLY PRECIPITATION STATION
DRAINAGE BASIN BOUNDARY
ISOHYETS OF RAINFALL IN INCHES

NORTH COASTAL AREA
PRECIPITATION STATION LOCATION
AND
ISOHYETAL MAP
JANUARY 17-28, 1972

RAINFALL RUNOFF

North Coastal Hydrographic Area

Storms that move into California usually hit the North Coastal Hydrographic Area first, and are usually more frequent and intense than in any of the other six major hydrographic areas of the State. The area's annual precipitation averages, among the highest in the State, range from almost 30 inches in the Russian River Basin to more than 100 inches at some locations in the Smith River Basin. These large amounts of rainfall produce almost 40 percent of the average annual runoff for the State. Most of the North Coastal Area lies below 8,000 feet and receives very little snow; therefore, runoff is often almost immediate and sometimes devastating.

This area encompasses the stream basins from the Russian River to the Oregon border which drain west to the Pacific Ocean. It is approximately 270 miles long, north to south, and varies in width from 180 miles along the Oregon Border to 30 miles at the southern end of the Russian River Basin.

Major rivers and tributaries contained in this hydrographic area are the Smith, Klamath, Trinity, Mad, Eel, and Russian Rivers, and Redwood Creek. The smaller streams include the Elk, Mattole, Ten-Mile, Noyo, Navarro, and Gualala Rivers, and Jug Handle and Hollow Tree Creeks.

Water year 1971-72 started weakly in this area, with only 35 percent of the monthly normal rainfall received in October 1971; however, the remaining winter months compensated by producing a nearly normal water year. The geographic spread of the precipitation, however, was unusually nonuniform; the northern portion received approximately 130 percent of normal rainfall, whereas the Russian River Basin at the southern end received less than 50 percent of normal. The concentration of storms at the northern end produced two major floods on the Smith River in Del Norte County and local flooding and mudslides in the northern portion of Humboldt County. Except for the Smith River, major streams remained below flood stage throughout the year.

Hydrographs of selected stations for the two major runoff periods for the Smith, Klamath, and Mad Rivers and for Redwood Creek are presented on Figures 8 and 9.

Isohyetal maps for the two major storms are shown on Figures 6 and 7.

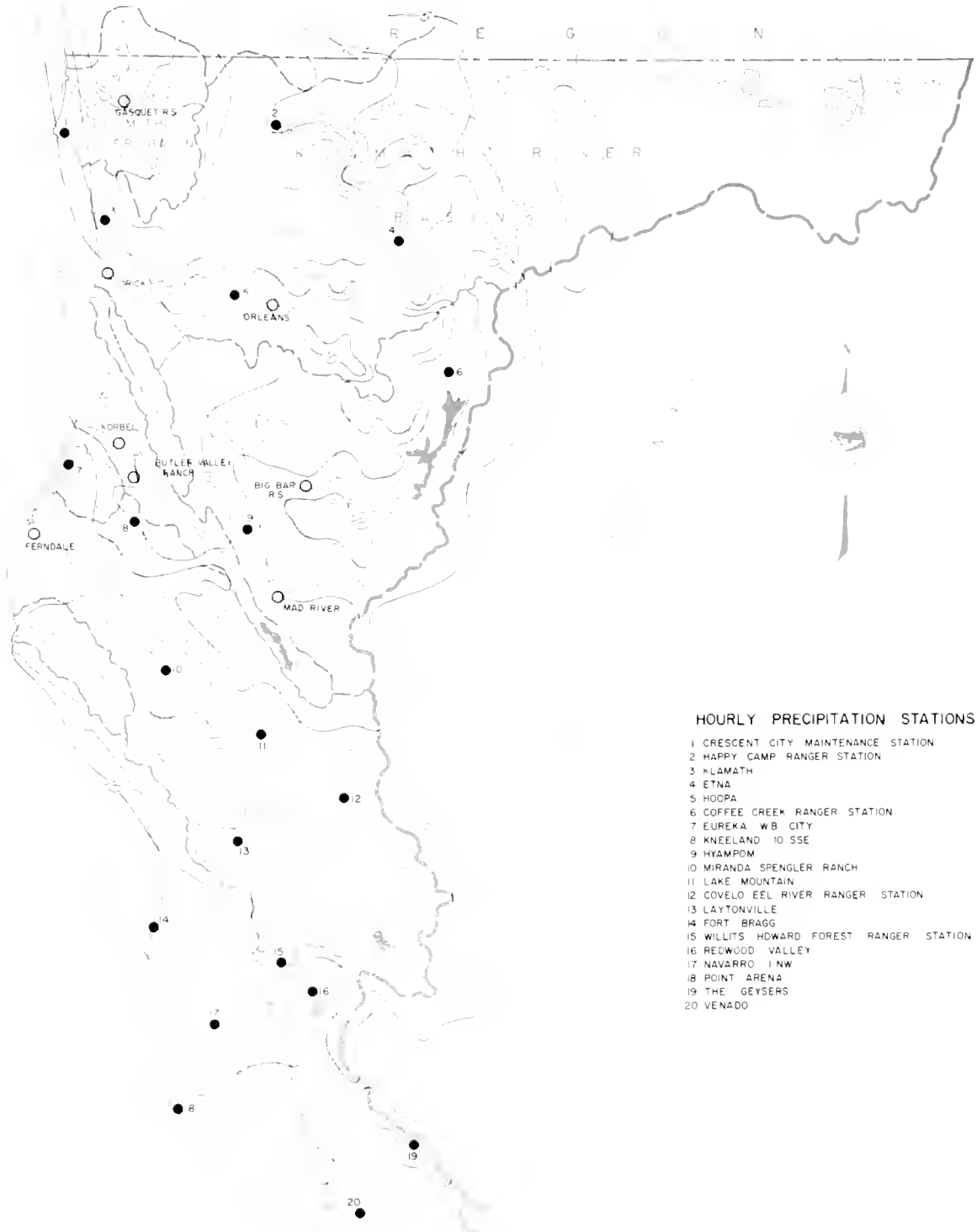
Peak flows and stages for all monitored streams in this area are included in the Appendix.

Smith River Basin

The Smith River, the northernmost stream in the North Coastal Hydrographic Area begins in Oregon, winds through the northwest corner of California, and discharges into the Pacific Ocean a few miles south of the Oregon border. It drains approximately 720 square miles of rugged mountains and foothills, most of which lie below 3,000 feet, although some mountains along the eastern edge rise to 5,000 feet.

The basin is usually the first region of the State to be reached by storms. Rainfall averages nearly 30 inches per year; some stations receive more than 110 inches per year. Rainfall exceeding one inch per day occurs in this basin about 20 days of every year.

FIGURE 7



HOURLY PRECIPITATION STATIONS

1 CRESCENT CITY MAINTENANCE STATION
2 HAPPY CAMP RANGER STATION
3 KLAMATH
4 ETNA
5 HOOPA
6 COFFEE CREEK RANGER STATION
7 EUREKA WB CITY
8 KNEELAND 10 SSE
9 HYAMPOM
10 MIRANDA SPENGLER RANCH
11 LAKE MOUNTAIN
12 COVELO EEL RIVER RANGER STATION
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16 REDWOOD VALLEY
17 NAVARRO 1 NW
18 POINT ARENA
19 THE GEYSERS
20 VENADO

LEGEND

- HOURLY PRECIPITATION STATION
- DRAINAGE BASIN BOUNDARY
- ISOHYETS OF RAINFALL IN INCHES

NORTH COASTAL AREA
PRECIPITATION STATION LOCATION
AND
ISOHYETAL MAP
FEBRUARY 22 - MARCH 3, 1972

Most of this precipitation falls between October and April, causing high river stages and some flooding several times a year. Because the soil mantle on the steep mountain slopes is generally loosely compacted, prolonged and intense rains often cause damaging mudslides.

Beginning about mid-October 1971 and continuing until mid-January 1972, a series of light to moderate storms passed through the basin, producing approximately 90 percent of normal precipitation. During this period the Smith River approached warning stage twice (November 26 and December 6) but receded quickly and remained at low stage until mid-January.

During January 17-28, 1972, more than 20 inches of rain fell over most of the basin; Gasquet Ranger Station received 23.7 inches of rain during this period. The storm was particularly severe during the three days from January 20-22: Gasquet Station received 15.5 inches and Crescent City received nearly 8 inches. This storm produced the second highest flood stage of record on the Smith River, exceeded only by those produced by the 1964 flood (Figure 8). Local runoff and overflow from Smith River inundated much of the low-lying farmland, county roads, and resort areas west of U. S. Highway 101 between the communities of Smith River and Fort Dick. The intense rainfall also produced numerous slides that damaged state and county highways; hardest hit was South Fork Road, which suffered an estimated $800,000 in damage from slides and washouts. Agricultural losses were estimated at over $1,000,000.

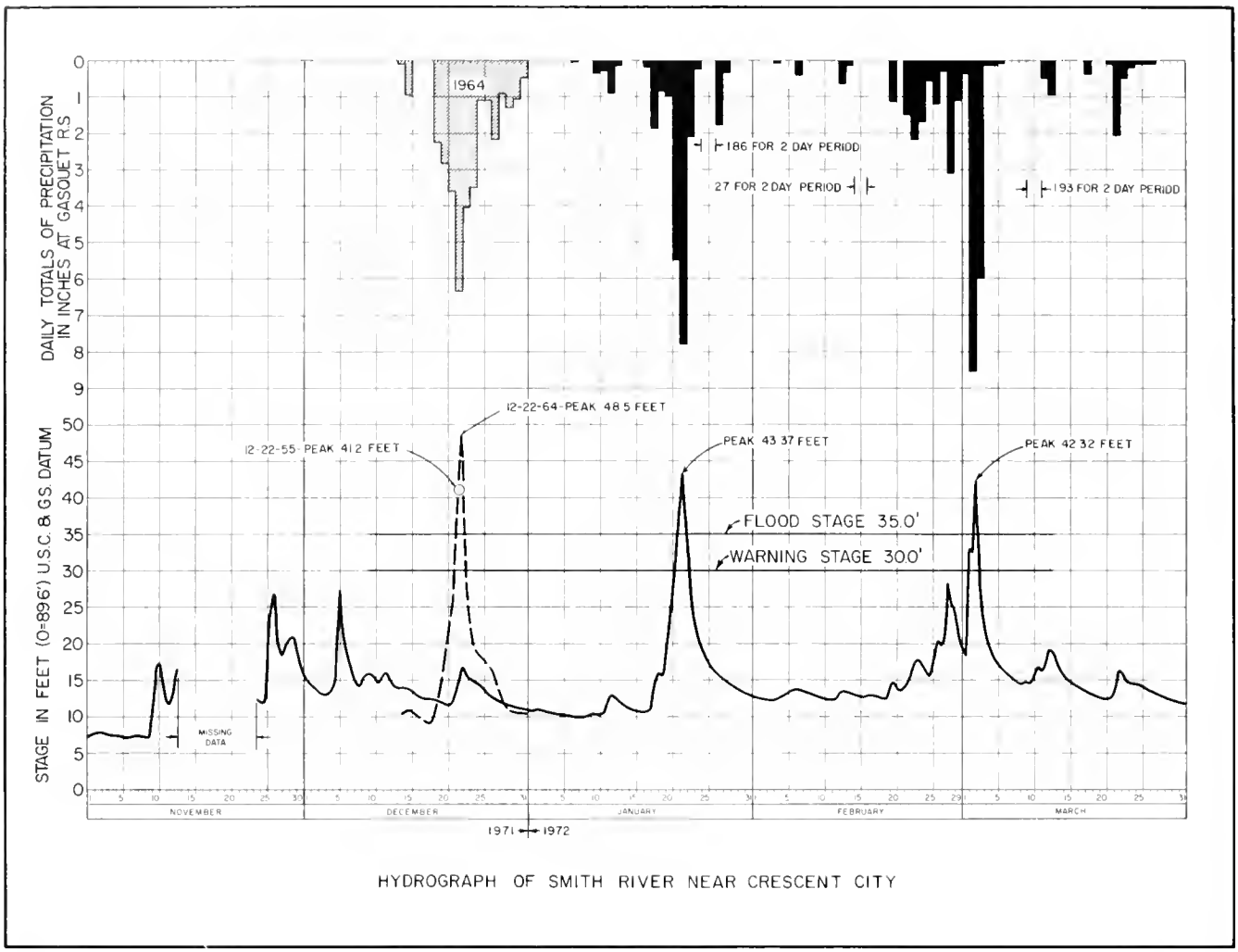
Miscellaneous damages caused by this flood included loss of an evacuated mobile home that burned and was washed away, loss of over a dozen head of dairy calves, loss of nursery plants from a bulb farm, loss of a suspension footbridge across Mill Creek in the Jedediah Smith Redwoods State Park, and blockage of the municipal water supply for the community of Smith River. The Del Norte County Board of Supervisors declared a local state of emergency on January 24; the State and Federal Governments followed suit on February 29 and April 6, respectively, making low-cost loans available to residents for repair of flood damages.

Lowland flooding by this January storm near Fort Dick was apparently intensified by a sandbar blocking the outlet from Lakes Earl and Talawa. This is a chronic problem for this area, and it worsens when conditions prevent crews from quickly opening the outlet. The lakes broke through the sandbar shortly after noon of January 22; the outlet remained open during the remainder of the season.

Following the January flood, the basin enjoyed three weeks of relatively dry weather, during which only about 2.7 inches of rain fell. Rain fell again from February 22 through March 3, dropping another 20-plus inches over most of the basin. Gasquet Ranger Station received 26.7 inches of rain during this storm series, over 14 inches of which fell during the 48 hours between 8:00 a.m., March 1, and 8:00 a.m., March 3. The Smith River reached the third highest stage of record and again flooded most of the low-lying land still recovering from the January flood. Heavy silt and debris deposits were again prevalent. State and county roadways once more received major damage. A major slipout on Highway 101 at Last Chance Grade south of Crescent City caused two deaths, and earth slides along Highway 199 caused two more deaths. Highway 199 was closed for 85 hours.

Following the downpour on March 1 and 2, rainfall subsided sufficiently to permit the Smith River and smaller streams to recede and allow the lowlands to drain. By mid-morning of March 4, the stage of Smith River near Crescent City had dropped 20 feet from

FIGURE 8



HYDROGRAPH OF SMITH RIVER NEAR CRESCENT CITY

Flooded ranch (left) and bulb farm near the community of Smith River, Del Norte County, on January 22, 1972.
(Photo by Department of Water Resources)

its peak (Figure 8). Two additional storms during March brought the total rainfall for the month to 22.4 inches at the Gasquet Ranger Station but caused only minor rises on the Smith River. During April, a series of moderate storms brought an additional 6 to 9 inches of rain to the basin, but the storms were sufficiently scattered so that again only moderate rises occurred on the Smith River. Gasquet Ranger Station received 9.46 inches of rain in April, bringing the season total there by May 1 to 110.5 inches. Normal rainfall for this period at this station is approximately 85.5 inches.

Klamath River Basin

Lying south and east of the Smith River Basin is the 15,700-square-mile Klamath River Basin, a rugged mountain watershed of which nearly a third is located in Oregon. Major tributaries to the Klamath River at the Salmon, Scott, Shasta, and Trinity Rivers. The Klamath River Basin is a prime recreation area that comprises over one-half of the entire North Coastal Hydrographic Area. Its mountains reach elevations of more than 8,000 feet.

Average annual rainfall for this basin ranges widely from approximately 20 inches in the drier interior to more than 85 inches near the coast. The higher elevations receive some snowfall, varying from approximately 12 inches average annual at Big Bar Ranger Station to over 25 inches average annual at Happy Camp Ranger Station.

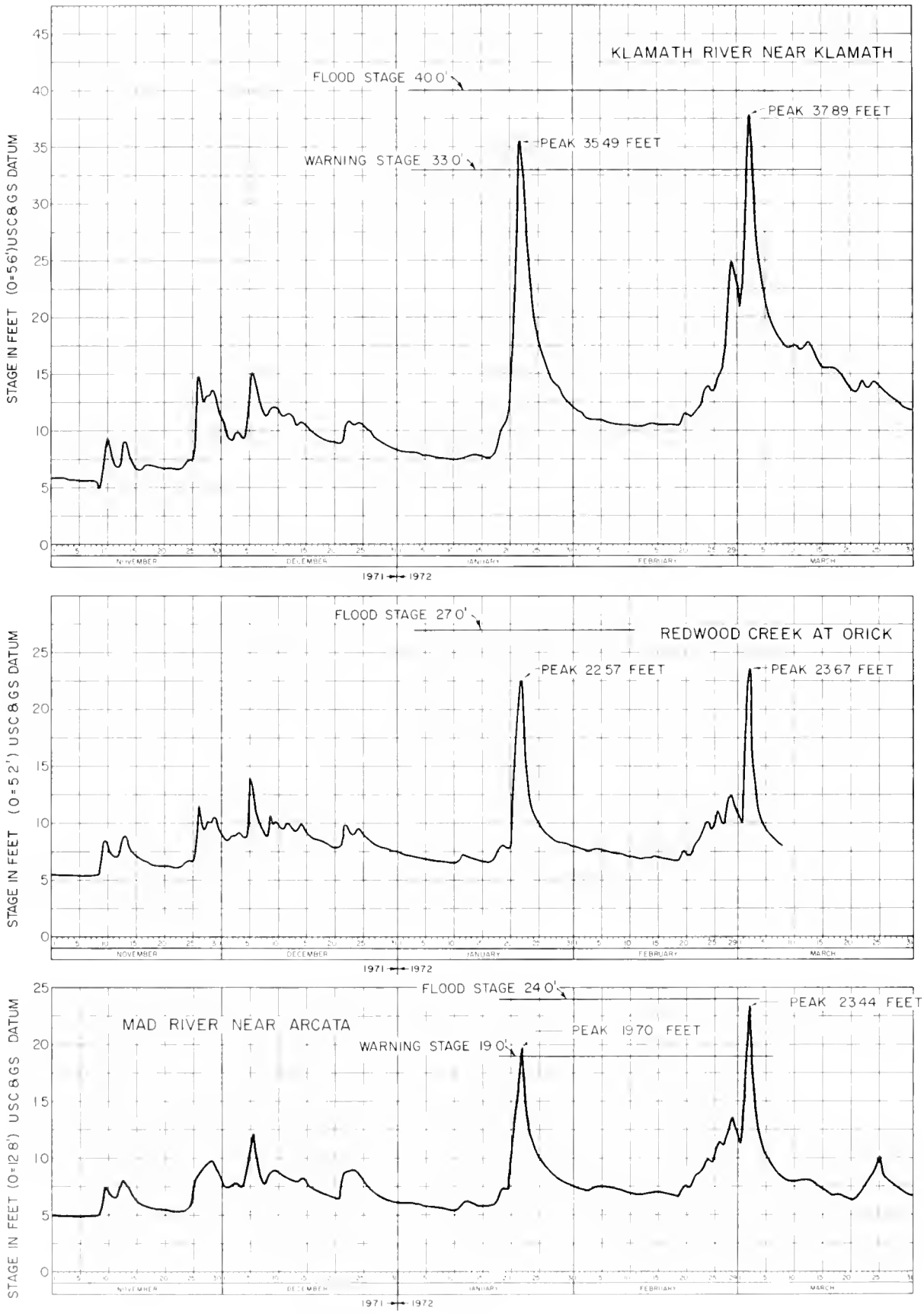
The Klamath River Basin was one of the few major basins in the State to receive normal to above-normal rainfall for the water year. However, as did most of the State, this basin received subnormal rainfall during October, above-normal rainfall during November, and near-normal rainfall in December.

By mid-January the western portion of the basin had received approximately 20 inches of rain and the coastal area near Klamath had received more than 30 inches. During this period, the rainfall was sufficiently spread so that no appreciable rises in the major streams occurred.

Beginning on January 17, the storm series that produced the second highest flood stage of record on the Smith River also entered this basin. During a 3-day period, the storm dropped more than 14.5 inches of rain at Klamath and slightly less than 10 inches at Orleans, about 30 miles inland. However, the high-intensity rainfall did not extend into the Trinity River Basin or to the eastern tributaries of the Klamath. The Trinity River crested approximately 14 feet below flood stage at Hoopa; the Klamath River peaked approximately 4 feet below flood stage at Klamath Glen. Although no major flooding occurred, the areas hit by the intense rainfall did experience local flooding. Several county roads were flooded; U. S. Highway 101 was flooded just north of Klamath but remained open; State Highway 169 washed out at two locations; and State Highway 96 was closed temporarily by two slides near Orleans.

The first three weeks of February brought only light rains to the basin: Klamath received 3.1 inches; Orleans received only 1.2 inches. On February 22, the second major series of storms entered the basin. By March 3, Klamath had been drenched with almost 23 inches of rain and Orleans, with almost 16 inches; within a 24-hour period on March 2, Klamath recorded 8.9 inches and Orleans recorded 5.0 inches. This storm brought the Klamath River to within 2.2 feet of flood stage at Klamath Glen. Again no major flooding occurred, but many county roads were closed by flooding or land slippage, and State Highway 169 was closed by a major cave-in and 8 minor slides and slip-outs. Approximately 400 persons were temporarily stranded at

FIGURE 9



HYDROGRAPHS OF KLAMATH AND MAD RIVERS AND REDWOOD CREEK

Klamath Glen by these closures. Floodplain zoning and the recently completed levee project at Klamath Glen prevented damage in areas previously subject to flooding. However, several homes were damaged by slides, erosion, and accumulation of silt and debris along minor streams, creeks, and gullies. Humboldt County was declared a disaster area by President Nixon on April 1, 1972.

The western portion of the basin received above-normal rainfall during April, but no significant rises in the river occurred.

Redwood Creek Basin

Redwood Creek drains a long, narrow basin sandwiched between the Klamath-Trinity and the Mad River Basins. It extends 55 miles southwest from the coast and contains approximately 279 square miles of mountainous terrain. With a maximum elevation of 4,600 feet, the basin receives very little snowfall; runoff causes sharp rises in Redwood Creek almost immediately following intense rainfall.

Redwood Creek Basin received slightly above-average rainfall for the water year. The two major storm series that caused flooding on the Smith River this season also brought appreciable rain to this basin. Ten inches of rain fell within two days on January 21 and 22, causing sharp rises in Redwood Creek and its major tributary, Prairie Creek. The flows were well contained by the levees on Redwood Creek built in 1968, but Prairie Creek flooded lowlands near its mouth just north of Orick.

Following the January storms, the basin experienced three weeks of relatively dry weather, which allowed the area to drain. However, on February 22, the second major storm series entered the basin, bringing several inches of rain within a week and again saturating the soil. On March 2, the rain became a downpour and deposited 4.6 inches at Orick within 24 hours; runoff brought Redwood Creek at Orick to within 3.5 feet of the design flood stage. The levees contained the flows but suffered major erosion damage estimated at $30,000. Approximately 300 feet of rock protection and embankment along the right bank levee was eroded; however, the core of the levees held and prevented an estimated $800,000 potential flood damage.

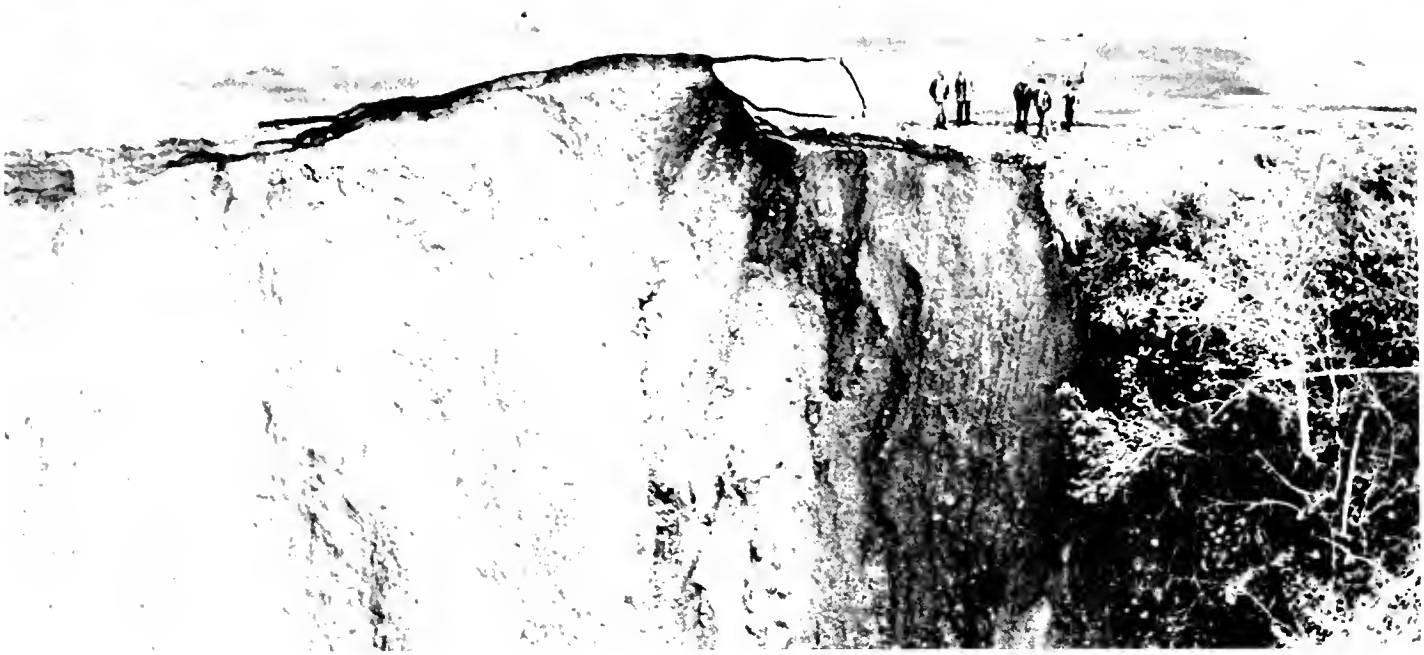
The basin received slightly above-average rainfall during April, but less than one-half of average during May.

Mad River Basin

The Mad River drains a long, narrow basin that extends approximately 80 miles southeast from the coast north of Eureka and contains slightly less than 500 square miles. Less than 20 square miles are classified as valley land. The higher mountains of the basin reach elevations of 6,000 feet and receive some snowfall.

Ruth Dam and Reservoir are located on Mad River approximately six miles upstream from the Highway 36 Bridge at Mad River Park. The dam is a municipal water supply facility and has an ungated spillway with the crest at an elevation of 2,654 feet, and a gated release of about 380 cfs, a negligible capacity (from a flood-flow point of view). The maximum spill and release of record occurred on December 22, 1964, when about 32,000 cfs of flow was recorded. The maximum spill during the season was approximately 4,400 cfs on February 29.

This basin marked the approximate southern limit of the high-intensity storms of January and March of this season. The January storm dumped 9 inches of rain in two days at Korbel but tapered off inland: during these two days, Butler Valley Ranch received about 5 inches and Mad River Ranger Station received about 4 inches; just 25 miles south of Korbel,



Above, slipout on Last Chance grade, U. S. Highway 101, near Crescent City, Del Norte County, March 3, 1972.

Below, slides and slipouts along South Fork Road on Smith River, Del Norte County, March 3, 1972.

(Photos by Harris, Crescent City, California)

Ferndale received only 3.75 inches during the same period. The January storms brought Mad River to within 4.5 feet of flood stage at Arcata and caused local flooding and slides.

The March storm followed the pattern of the January storm, but it had a higher single-day intensity and extended farther inland. On March 2, Korbel received 5.7 inches of rain, Butler Valley Ranch received 4 inches, and Mad River Ranger Station received 1.9 inches. Runoff from this downpour brought Mad River to within one-half foot of flood stage at Arcata, and eroded the south bank near the mouth between Canal School and Tyee City. Approximately 1,200 feet of rock revetment was lost along this reach.

Although Mad River remained below flood stage, considerable flooding again occurred along smaller tributaries and along streams flowing directly into Humboldt and Arcata Bays. Debris plugged the railway bridge on Dave Creek at Blue Lake and caused minor flooding of the business district of that community. Maple Creek deposited considerable debris and logs along the channel, posing a hazard to the Korbel Road Bridge downstream. Jacoby Creek flooded low-lying land, causing water damage to at least three dwellings and depositing silt on pasture land. The county road systems were hard hit with flooding and slides. No major damage or fatalities were reported to have been caused by this storm.

The basin received above average rainfall during April, but no further significant rises in the river occurred during the remainder of the season.

Levee erosion along Redwood Creek, Humboldt County, March 7, 1972.

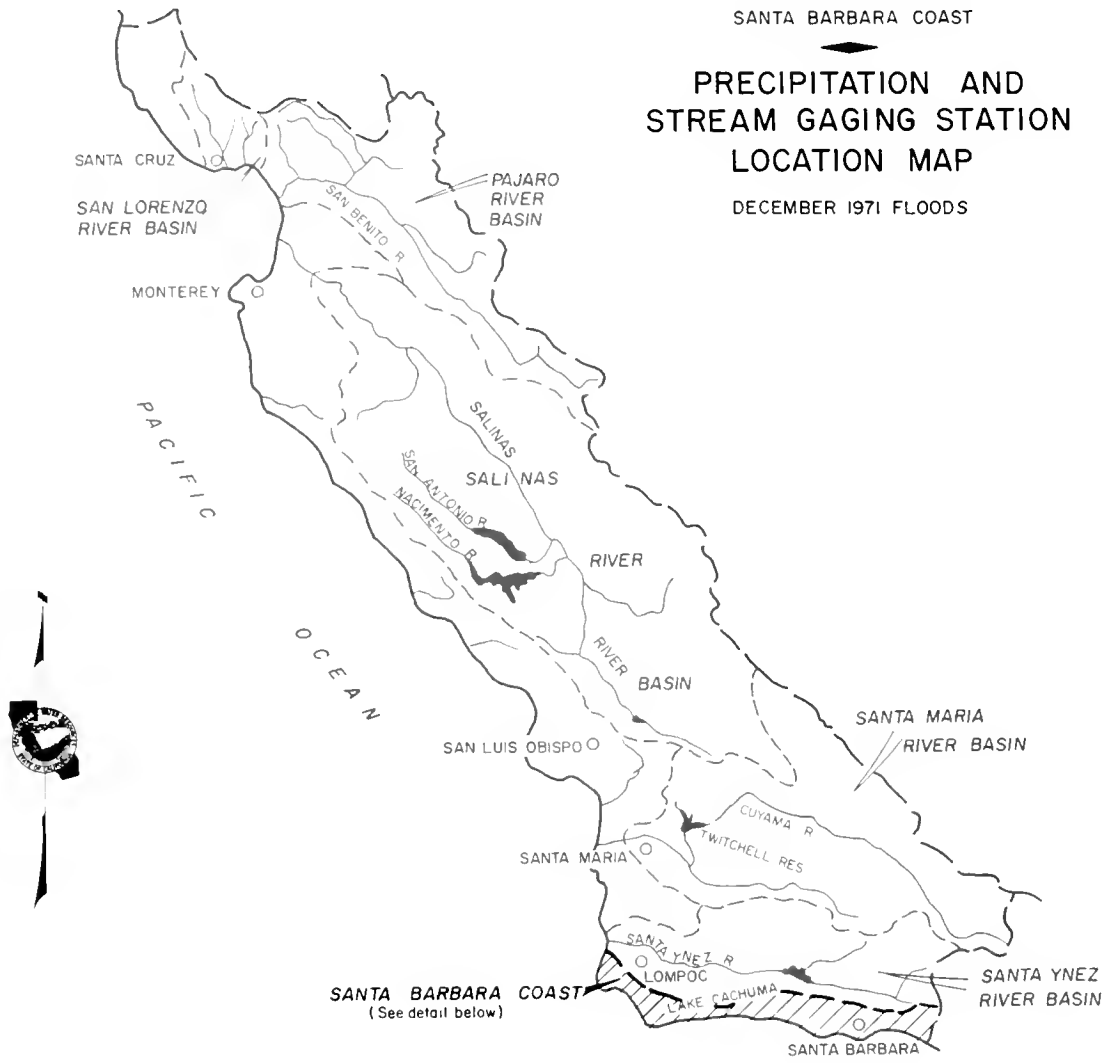
(Photo by U.S. Corps of Engineers)

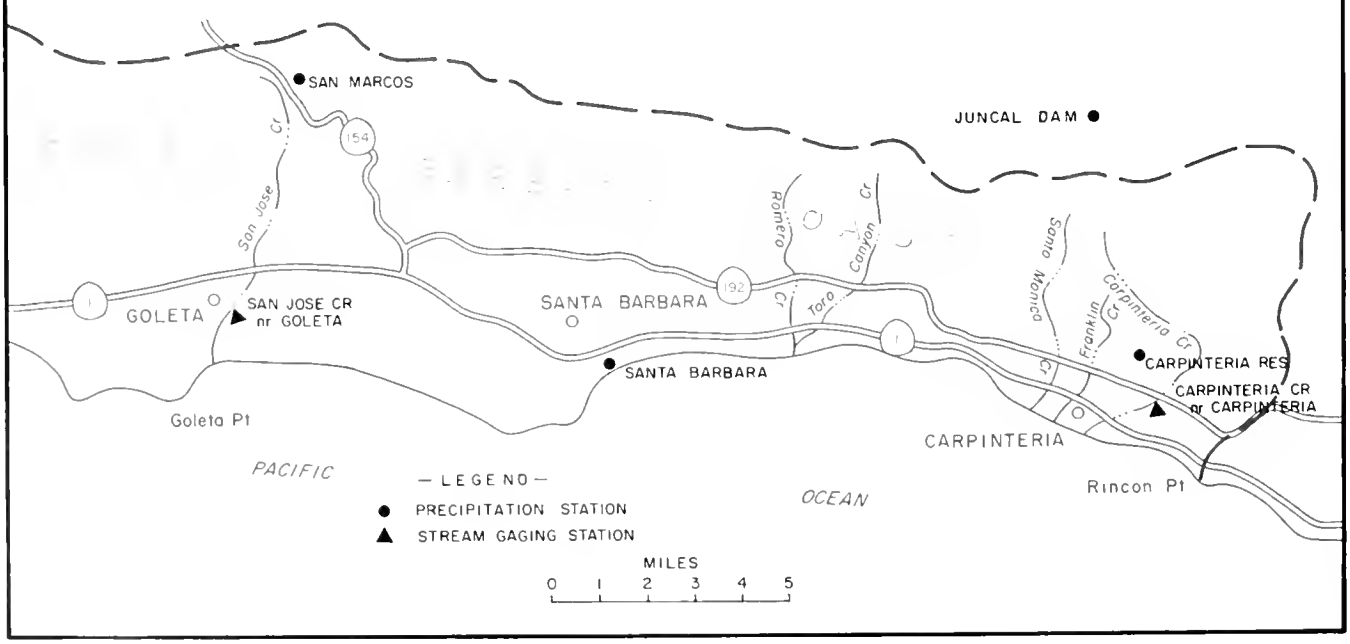
FIGURE 10

CENTRAL COASTAL AREA
SANTA BARBARA COAST

PRECIPITATION AND STREAM GAGING STATION LOCATION MAP

DECEMBER 1971 FLOODS





Central Coastal Hydrographic Area

The Central Coastal Hydrographic Area includes drainage areas of the coastal streams from Pajaro River, which separates Santa Cruz and Monterey Counties, south to the Santa Barbara-Ventura County boundary. Principal streams are the Pajaro, Salinas, Santa Maria, and Santa Ynez Rivers.

Average annual precipitation ranges from light to moderate and generally decreases from north to south and from west to east. The southern portion of Salinas Valley receives approximately 12 to 14 inches of rainfall annually, whereas the Big Sur area receives from 40 to 60 inches.

During the water year 1971-72, the Central Coastal Area experienced the general subnormal precipitation felt in the valley floors of Sacramento-San Joaquin Basins. Runoff in the major streams was only 25 to 30 percent of normal--except along the southern Santa Barbara Coast, which suffered extensive damage from flooding and mudslides during late December 1971, and which was subsequently declared a disaster area.

Santa Barbara Coast

The Santa Barbara Coast drainage area consists of the south slope of the Santa Ynez Mountains from Point Arguello near the mouth of Santa Ynez River to near the Santa Barbara-Ventura County line. It includes numerous small streams that drain directly into the Pacific Ocean.

On October 6, 1971, a brush fire started in Romero Canyon east of Santa Barbara. Spreading north and east, the fire burned almost 14,000 acres of heavy brush on the southern slopes of the Santa Ynez Mountains. Damage to the watershed was estimated at $1 million. The denuded area also posed a threat of flooding and debris damage in the event of heavy winter rains, and emergency measures were taken to reduce this threat as far as possible. These measures included removal of snags and fallen trees, construction of small debris dams, and enlargements of stream channels. The remedial work was performed by the County and was partially financed by the State under authority of AB 3099.

Following the Romero fire, the area received only slight rainfall through October, November, and the first three weeks of December. However, beginning December 21, a major storm entered the South Coastal Area and, with only two brief interludes, lasted through December 27. The storm reached a climax on December 27 with a predawn deluge over the burned-out watershed of the Santa Barbara Coast. Runoff totals in Romero Creek, Toro Canyon Creek, Santa Monica Creek, Franklin Creek, and Carpinteria Creek were of flash-flood proportion and carried heavy loads of debris and mud. Highway 101 near Carpinteria was blocked for 8 hours when a 3-foot wall of mud and water pushed across it toward the ocean. Several roads were blocked by flooding, mud, debris, and damaged bridges. In the Carpinteria area, ten to fifteen families were evacuated, and their homes were damaged by the mud flows. No deaths or serious injuries were reported.

The peak flows in these streams reportedly exceeded the previous record flows of January 1969. However, comparisons of rainfall during the January 1969 and December 1971 storms (see Table 2), and comparisons of peak flows of December 27, 1971 in San Jose Creek (unburned) and Carpinteria Creek (burned) (see Table 3) indicate that the

Carpinteria High School, Carpinteria, Santa Barbara County. Man is pointing to high-water mark left by flooding during December 1971.

(Center and bottom) Flooding and erosion of citrus groves along Carpinteria Creek, Santa Barbara County, during December 1971.

Photos by Department of Water Resources

December 1971 flooding was more attributable to the Romero fire than to the intensity of the storm. Nonetheless, the local flood control agency reported that the remedial work performed immediately after the Romero fire was of great value in limiting the damage caused by the runoff.

After the December storm, the area received slightly over 1 inch of rain during the remainder of the season. Approximately 80 percent of the season's total rainfall occurred during the December 21-27 storm.

Table 2: PRECIPITATION COMPARISONS, STORMS OF JANUARY 1969 & DECEMBER 1971 (INCHES)

Station	January 18-27, 1969				December 21-28, 1971				
	1-hr	6-hr	24-hr	Storm	1-hr	6-hr	24-hr	Storm	W-Y
Carpinteria Reservoir[1/]	--	--	--	--	0.6	2.0	2.1	6.5	8.9
Juncal Dam[2/]	--	--	16.0	43.8	--	--	3.7	8.3	11.2
Santa Barbara[3/]	0.7	2.5	4.0	14.5	0.5	1.7	2.6	7.3	8.6
San Marcos Pass[4/]	0.9	4.4	8.2	32.5	--	--	5.0	15.5	19.2

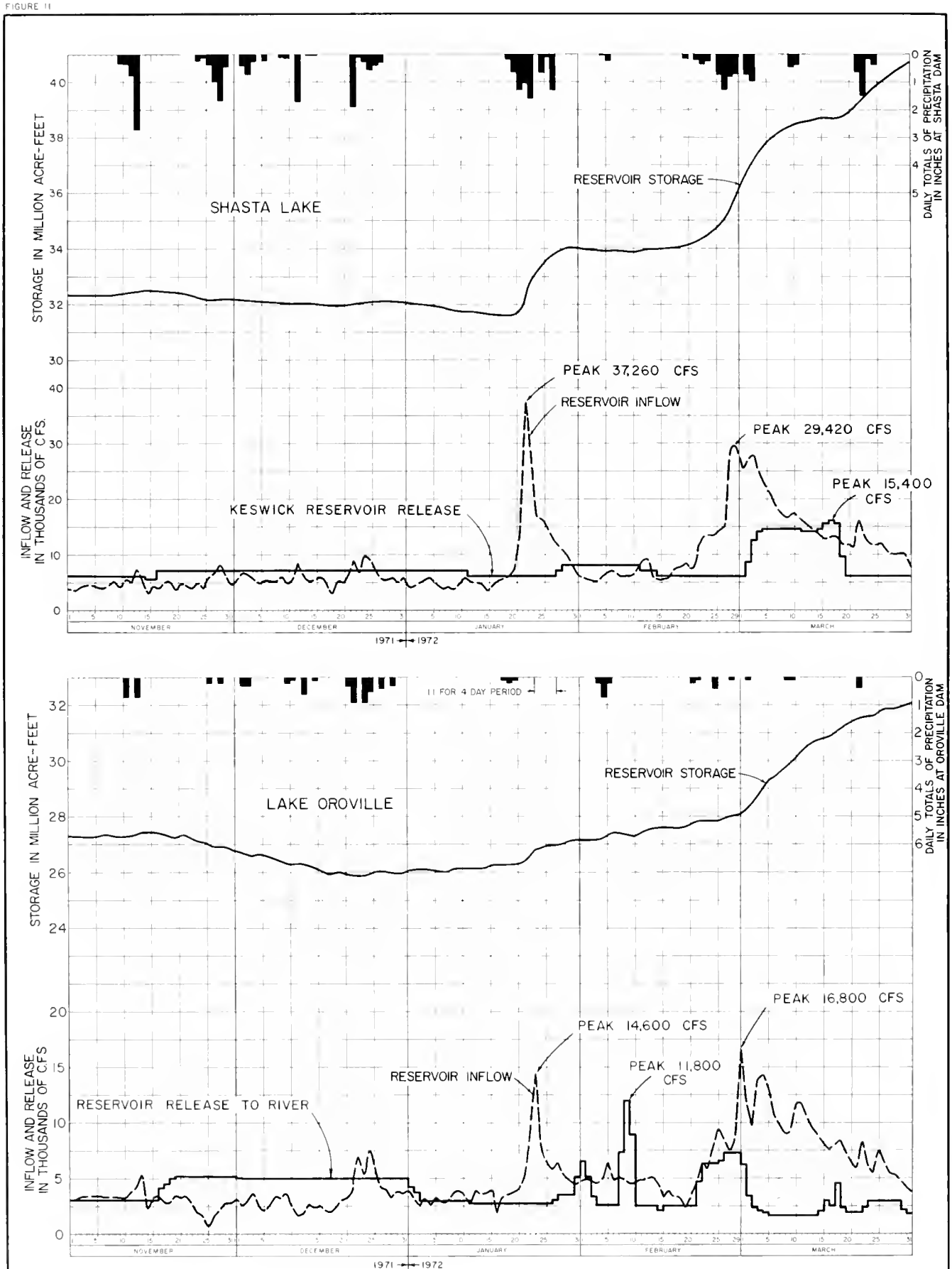
1/ About 2½ miles NE of Carpinteria; Carpinteria Creek drainage.
2/ About 7 miles N of Carpinteria; Santa Ynez River drainage.
3/ About 10 miles W of Carpinteria; Mission Creek drainage near coast.
4/ About 17 miles WNW of Carpinteria; San Jose Creek drainage.

Table 3: RUNOFF COMPARISONS, FLOODS OF JANUARY 1969 & DECEMBER 1971 (CUBIC FEET PER SECOND)

Date	Maximum Discharge	
	San Jose Creek near Goleta[1/]	Carpinteria Creek near Carpinteria[2/]
1/25/69	2,000 (maximum of record)	4,560 (maximum of record to date)
12/27/71	430	",880 (new maximum of record)

1/ Watershed not burned by the Romero Fire, October 1971.
2/ Watershed burned by the Romero Fire.

FIGURE 11



HYDROGRAPHS OF SHASTA LAKE AND LAKE OROVILLE

Central Valley Hydrographic Area

The Central Valley Hydrographic Area is approximately 500 miles long and 120 miles wide. It stretches from Goose Lake near the Oregon border to the Tehachapi Mountains south of Bakersfield, and encompasses the watersheds of all rivers and streams draining the eastern slopes of the Coast Range and the western slopes of the Sierras.

Two major rivers, the Sacramento and the San Joaquin, drain the entire Central Valley; all minor streams and rivers are tributary to either the Sacramento or the San Joaquin River, or drain into the Tulare Lake Basin south of Fresno. Principal tributaries to the Sacramento River are the McCloud, Pit, Feather, Yuba, Bear, and American Rivers flowing from the Sierras, and the Cottonwood, Stony, Cache, and Putah Creeks flowing from the Coast Range. Principal tributaries to the San Joaquin River are the Chowchilla, Fresno, Merced, Tuolumne, Stanislaus, Calaveras, Mokelumne, and Cosumnes Rivers, all flowing from the Sierras. No major streams flow to the San Joaquin from the Coast Range. The Kern, Kaweah, Kings, and Tule Rivers drain from the Sierras to the Tulare Lake Basin. During high stages, some flow from the Kings River reaches the San Joaquin River by way of Fresno Slough.

Average annual precipitation in the Central Valley Hydrographic Area decreases progressively from approximately 70 inches in the northern portions to less than 10 inches in the southern portions. As in most of California, most of this precipitation results from several major storms during the winter months. These storms create potentials for flood-producing runoff to the Sacramento and San Joaquin Rivers. Fortunately, heavy snowfall is a winter feature of the Sierras; therefore, much of the potential runoff is stored in snowpack until spring.

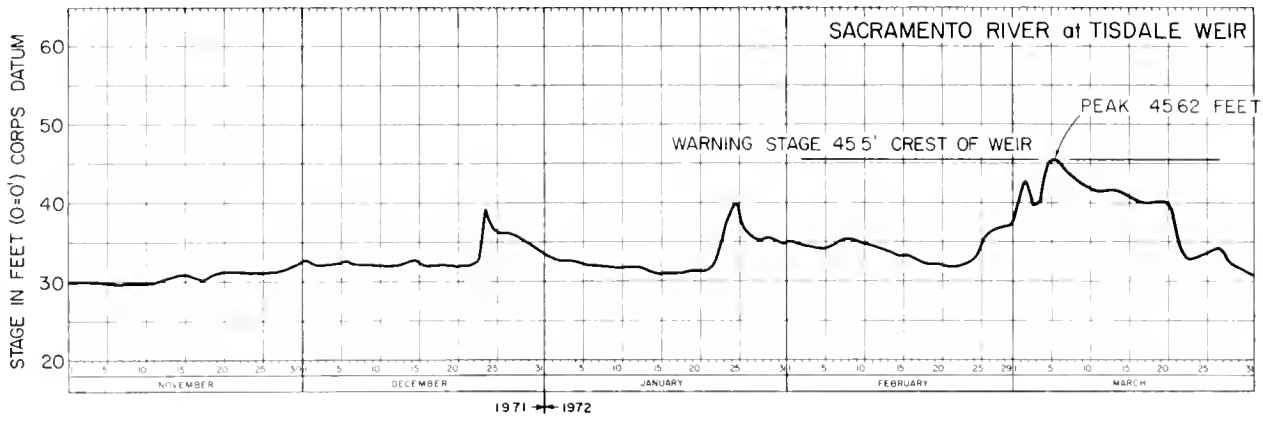
More than 60 significant upstream reservoirs, with a combined storage capacity of over 22 million acre-feet, reduce winter flows in the valley streams below the dams. Over 15 million acre-feet of this storage capacity are provided by nine major multiple-purpose dams: Shasta Dam on the Sacramento River, Oroville Dam on the Feather River, Bullards Bar Dam on the Yuba River, Folsom Dam on the American River, New Hogan Dam on the Calaveras River, New Don Pedro Dam on the Tuolumne River, New Exchequer Dam on the Merced River, Friant Dam on the San Joaquin River, and Pine Flat Dam on the Kings River.

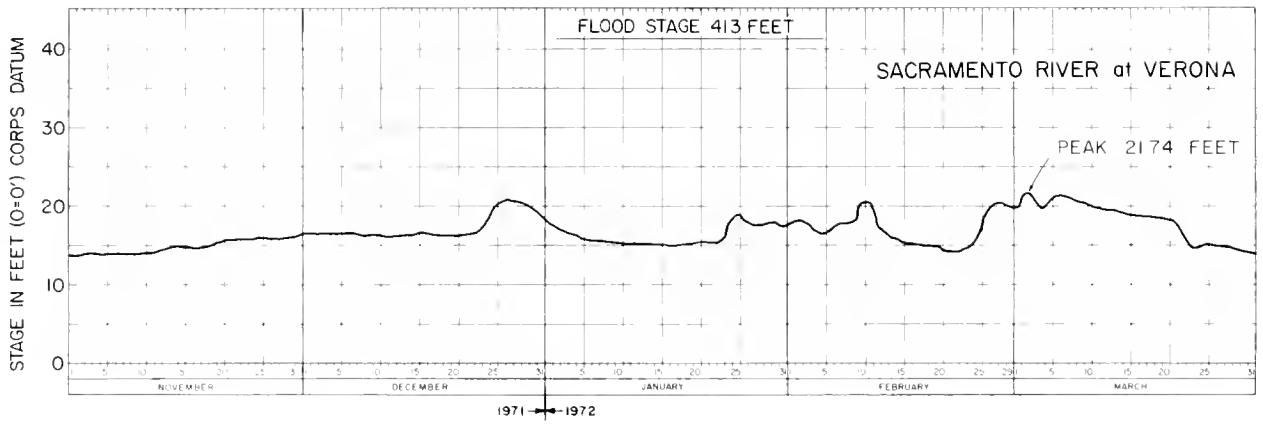
For the Central Valley Area, water year 1971-72 began cold and dry, and, with some extreme exceptions, followed the same general pattern through the year. The valley floors and western watersheds received only from 40 to 60 percent of normal rainfall for the season; the Sierra watersheds fared considerably better with 70 to 80 percent of normal precipitation--sufficient to provide a near-normal water supply in upstream storage reservoirs. Runoff produced no flooding or significant stages to the major streams, but other weather extremes marked the passage of the winter season.

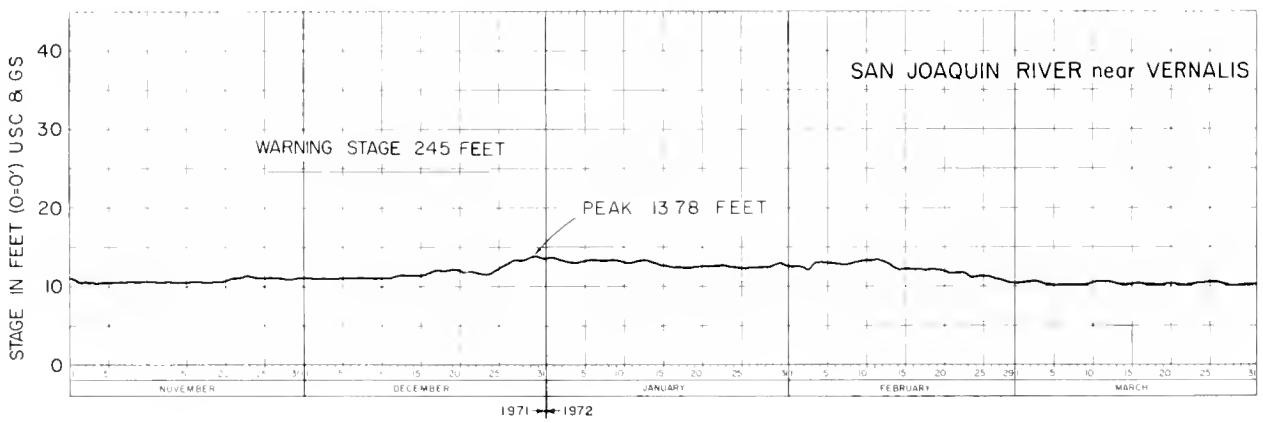
October 1971 set the pattern for the area with rainfall as low as 10 percent of normal in the valleys, but with snowfall of significant depths at high elevations; Mt. Shasta received a record snowfall for the month. Low temperature records for October were set at some locations, such as Blue Canyon, Fresno, and Bakersfield.

November continued the pattern; rainfall on November 11 at Red Bluff broke a 136-day dry spell.

FIGURE 12







HYDROGRAPHS OF SACRAMENTO AND SAN JOAQUIN RIVERS

December and January were notable for the cold, wet fog that gripped the interior valley from Sacramento to Bakersfield. The Sacramento River experienced its first significant rise of the water year late in January, but it was substantially below flood stage. A near-normal snowpack was maintained in the Sierras.

The February 22 - March 3, 1972 storm series that drenched the North Coast skirted the northern portion of the Central Valley, struck a glancing blow at the Sierras, and almost missed Sacramento. The stage on the Sacramento River at Tisdale Weir rose to slightly above the spill elevation, but no significant flow to the bypass system occurred. As shown in Figure 12, this marked the second and last semblance of winter flow for the Sacramento River this year; the San Joaquin River, also shown in Figure 12, experienced no significant rise during the entire water year. By the end of May, the water year had been established as the driest of record at Red Bluff; the second driest near Folsom Dam, Fresno, and Bakersfield; and the third driest near Shasta Dam. Figure 1A (Appendix A) provides a profile of this year's major crest on the Sacramento River against a background of selected historical crest profiles.

June and August brought severe thunderstorms to the lower San Joaquin Valley. On June 7, Bakersfield Airport recorded over 1 inch of rain in 45 minutes, while other areas reported up to 3 to 5 inches in an hour. Flash flooding in the Bakersfield area caused two deaths and an estimated $175,000 in damage to highways, buildings, and automobiles. Prior to that unseasonable storm, Bakersfield Airport had received only 1.75 inches of rain during the entire winter season.

However, the only major flood event of the year for the Central Valley Area resulted from neither seasonable nor unseasonable rainfall or runoff. This event was a levee failure in the Sacramento-San Joaquin Delta in the summer of a dry year: the Brannan-Andrus Islands flood of June 1972.

The Sacramento-San Joaquin Delta

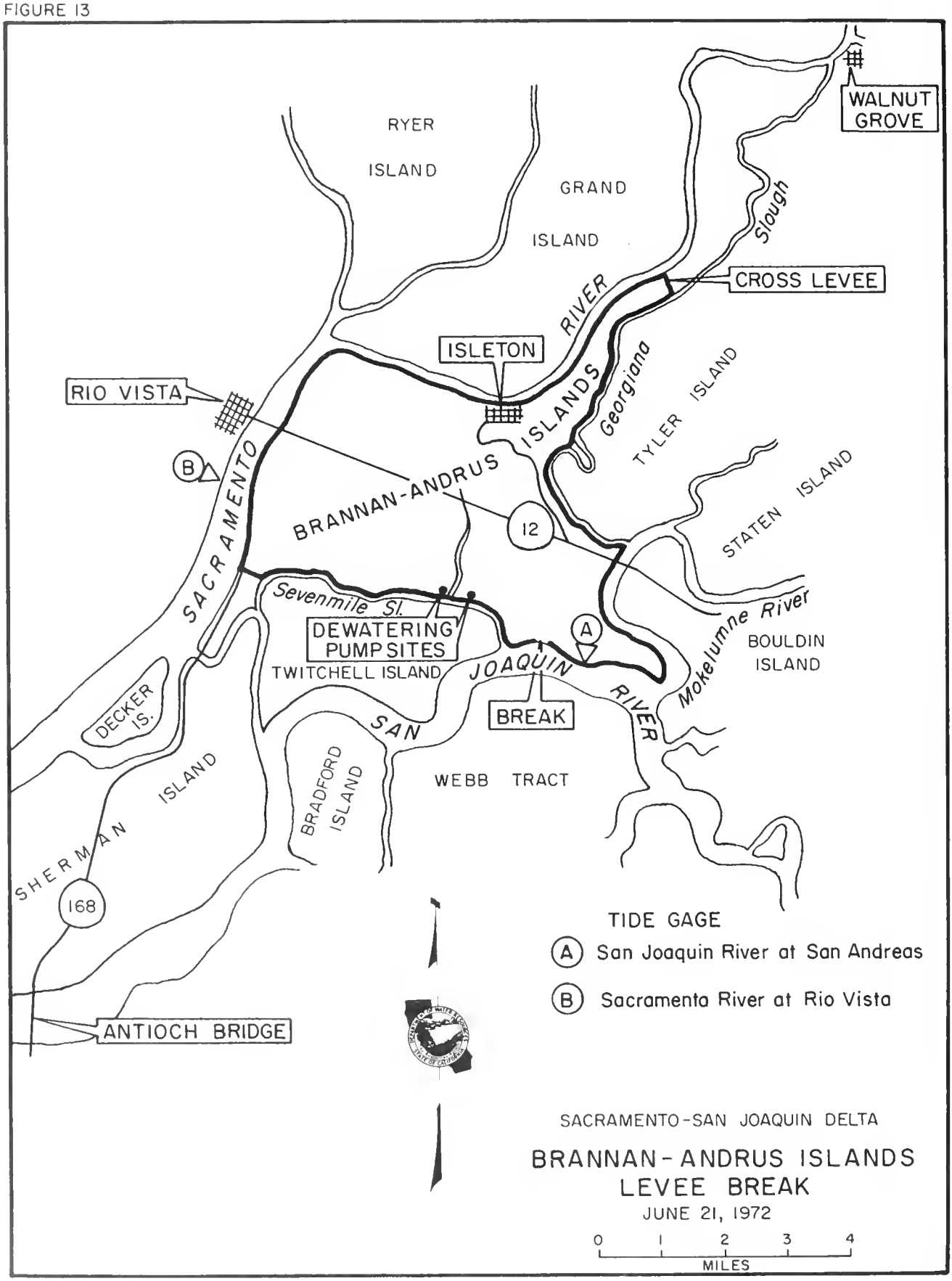
Located at the confluence of the Sacramento and San Joaquin Rivers, the Delta encompasses over 70,000 acres of agricultural land and a maze of interlinked waterways. Although the area is generally referred to as a single unit, it is actually composed of over 60 separate islands and tracts, each an entity with its own privately-owned levees and drainage systems.

More than 1,000 miles of levees protect these tracts of farmland from high tides and winter runoff from the Central Valley. These levees have been built progressively higher since the earliest reclamation of the tule swamps. The present levees range from 5 to 25 feet above ground surface but provide minimal freeboard for winter river stages.

The present land surface elevation of the major portion of the Delta lies from 5 feet above to 20 feet below mean sea level and is subsiding at the rate of approximately 1 foot every 4 years. Therefore, the hydrostatic pressures that these levees must withstand are constantly increasing. Moreover, the organic soils of the Delta provide poor material for levee construction.

On June 21, 1972, Brannan Andrus Islands flooded when a levee on the

FIGURE 13


WALNUT GROVE
RYER ISLAND
GRAND ISLAND
Slough
CROSS LEVEE
RIVER
ISLETON
Georgiana
TYLER ISLAND
RIO VISTA
ISLANDS
STATEN ISLAND
B
BRANNAN-ANDRUS
12
SACRAMENTO
Sevenmile Sl.
DEWATERING PUMP SITES
TWITCHELL ISLAND
A
Mokelumne River
BOULDIN ISLAND
JOAQUIN
RIVER
DECKER IS.
SAN
BREAK
BRADFORD ISLAND
WEBB TRACT
SHERMAN ISLAND
168
ANTIOCH BRIDGE
TIDE GAGE
(A) San Joaquin River at San Andreas
(B) Sacramento River at Rio Vista
SACRAMENTO-SAN JOAQUIN DELTA
BRANNAN-ANDRUS ISLANDS
LEVEE BREAK
JUNE 21, 1972
0 1 2 3 4
MILES

south side of the islands was breached by the San Joaquin River. The levee failure, which was discovered by sheriff's deputies at 1:05 a.m., took place a few hundred yards from the Spindrift Marina. The break was first reported to be about 100 feet wide. By 8:00 a.m. it had been widened to about 300 feet. Within the first few hours, the rush of water flooded a recreational trailer park on the land side of the marina and swept docks, boat houses, and boats (some of them occupied) from the marina into the interior of the islands. The flood water spread rapidly toward other recreational parks near the levee and toward the town of Isleton, lying about 4 miles north on the opposite side of the islands. By 9:00 a.m. the water had reached the outlying portions of the town.

Construction of a bow levee to protect Isleton was under way by 10:00 a.m., June 21, and the work continued until it was halted by rising tides and waves generated by 30- to 45-mph winds. At 9:45 p.m. on June 22, the bow levee was breached and the town's low-lying residential area, school, and sewage treatment plant were flooded.

On June 23, the third day of the flood, the water level in the islands had equalized with that in the San Joaquin River and the basin was full. In the lower portions of the islands, the flood water was more than 20 feet deep. Within slightly more than two days, more than 150,000 acre-feet of water had poured through the break from the river and gouged an 80-foot-deep hole where the levee had stood.

On July 1 work was started to repair the break with hydraulic dredgers and rock barges; the closure was completed on July 24 and dewatering commenced. Auxiliary drainage pumps with a combined capacity of approximately 1,000 cubic feet per second were installed to perform this work. By mid-September the water level in the islands had been lowered about 6 feet; by mid-November dewatering was substantially completed.

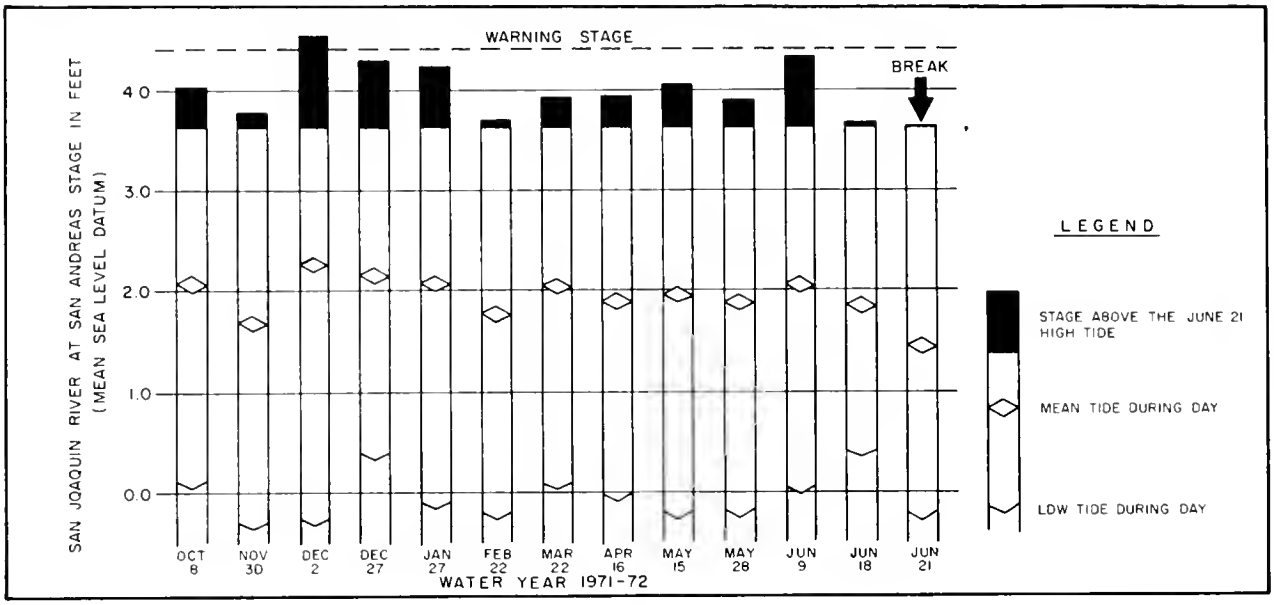
During the inundation, in which some 3,000 persons were reportedly made homeless, warnings given bysheriff's deputies and rescue work by U. S. Coast Guard boats and military helicopters prevented any loss of life. Property losses included damage to or destruction of about 350 homes, 125 mobile homes, 16 marinas, and 12,000 acres of crops. Suits totaling over $50 million were subsequently filed against local, state, and federal agencies on behalf of the flood victims. On June 27, the President declared the flood area a "Disaster Area", making federal funds available for local relief and recovery efforts.

Extensive damage was also caused by wavewash to the landward slopes of the levees along Seven-Mile and Georgiana Sloughs, and along the San Joaquin and Mokelumne Rivers. A flood emergency declaration was prepared by the Director of the Department of Water Resources and was signed by the Governor on the first day of the flood. Under this authorization, the Department conducted extensive flood fight activities along the Georgiana Slough levee and provided technical assistance in other areas. State, federal, and local agencies expended over $2\frac{1}{2}$ million on levee protection and repair work.

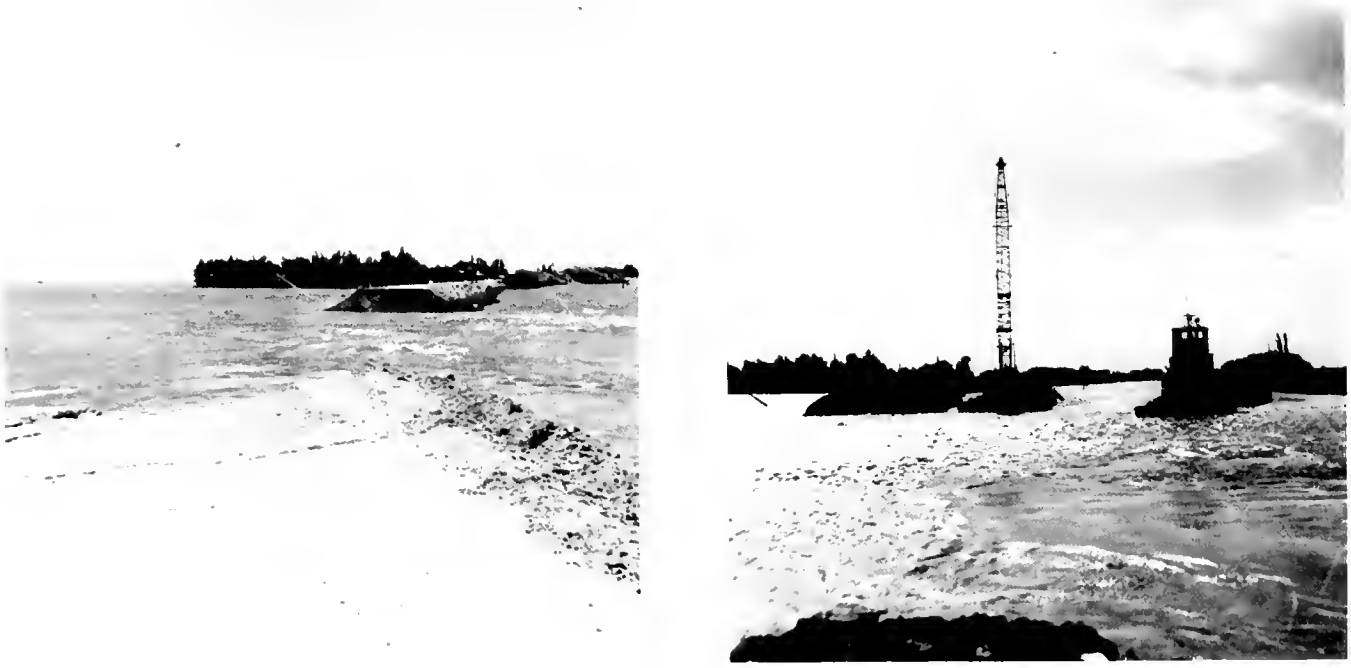
In addition to the damage caused within Brannan-Andrus Islands, the diversion of San Joaquin River flow through the break also disrupted the hydraulic barrier to saline water intrusion from San Francisco Bay. After the islands filled, the hydraulic barrier was restored. Releases from Shasta and Oroville Dams to the north were increased to help flush out the saline water that had penetrated the Delta waterways.

Figure 14 illustrates selected tide stages at the tide gage "San Joaquin River at San Andreas" shown on Fig. 13.

FIGURE 14. STAGES OF SELECTED HIGH TIDES NEAR BRANNAN - ANDRUS ISLANDS LEVEE BREAK



The Brannan-Andrus Islands levee break took place at a time of low river flows and moderate tides. Figure 14 compares the moderate tide recorded on the day of the break to higher tides recorded during normal periods of high water. Days shown typify ranges of these higher tides.



Brannan-Andrus Islands Flood

View across break in levee along San Joaquin River, looking toward Spindrift Marina, June 22, 1972. (DWR Photo No. 4245-34)

Rock reinforcement being placed along the levee break. (DWR Photo No. 4245-36)

(DWR Photo No. 4245-38)

Brannan-Andrus Islands flood: Above, construction of bow levee at Isleton, June 22, 1972. Below, wave-wash protection being placed along bow levee at Isleton sewage treatment plant.

(DWR Photo No. 4245-11)

Remains of a flood-devastated home on Tyler Island Road three months after the Brannan-Andrus Islands levee break.

(Sacramento Union staff photo by Jerry Rainbolt)

(DWR Photo No. 4246-9)

Brannan-Andrus Islands flood: Above, flooded school and homes in Isleton following breaching of bow levee. Below, flooded homes north of Isleton on Tyler Island Road, June 23, 1972.

(DWR Photo No. 4246-7)

(DWR Photo No. 4246-28)

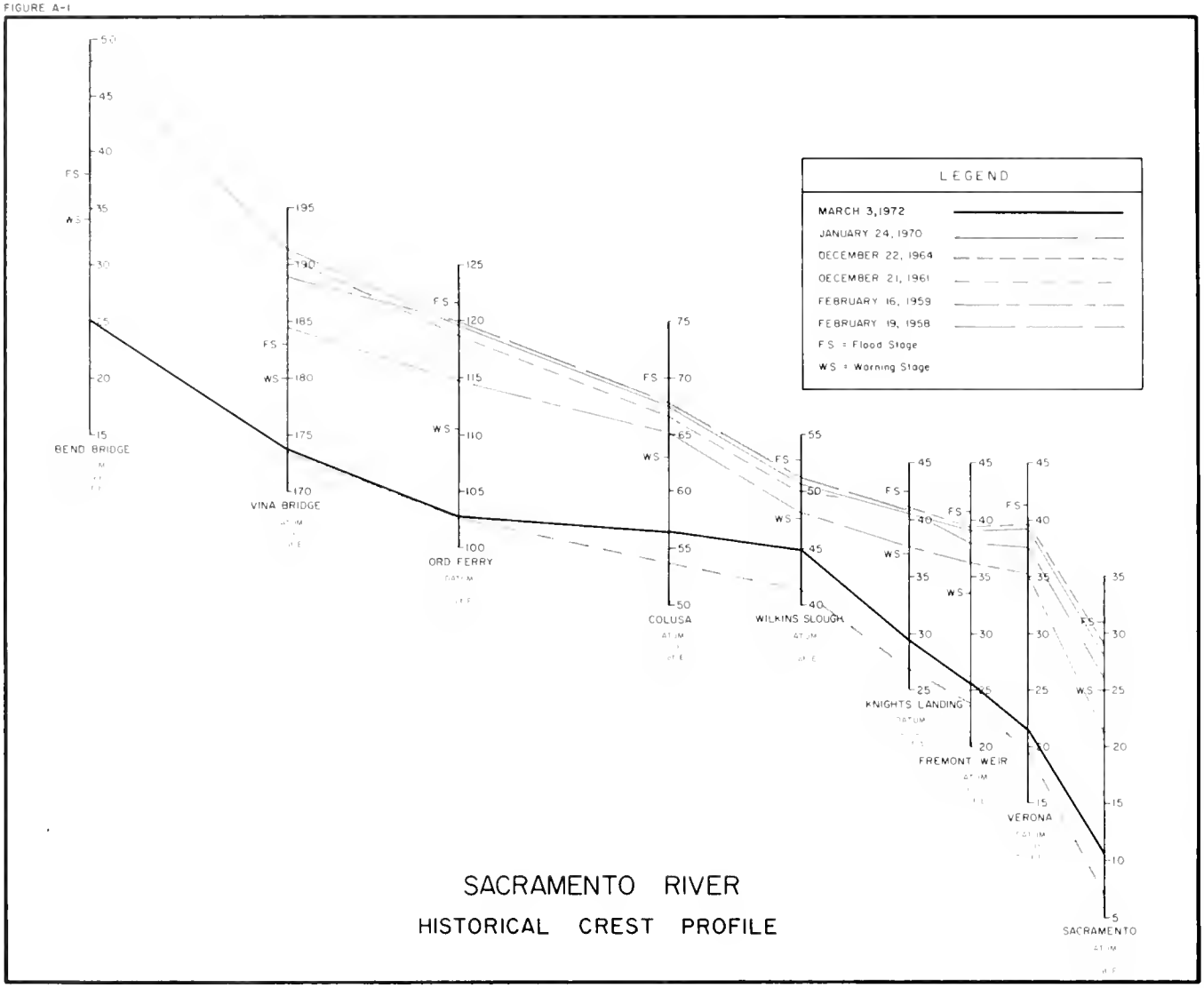
Brannan-Andrus Islands, June 23, 1972: Above, wave-wash erosion along landward slope of levee along Mokelumne River. Below, houseboat beached on Highway 12 embankment near Mokelumne River, after being swept through levee break.

(DWR Photo No. 4246-23)

APPENDIX A

Sacramento River Crest
and
Weir Overflow Records

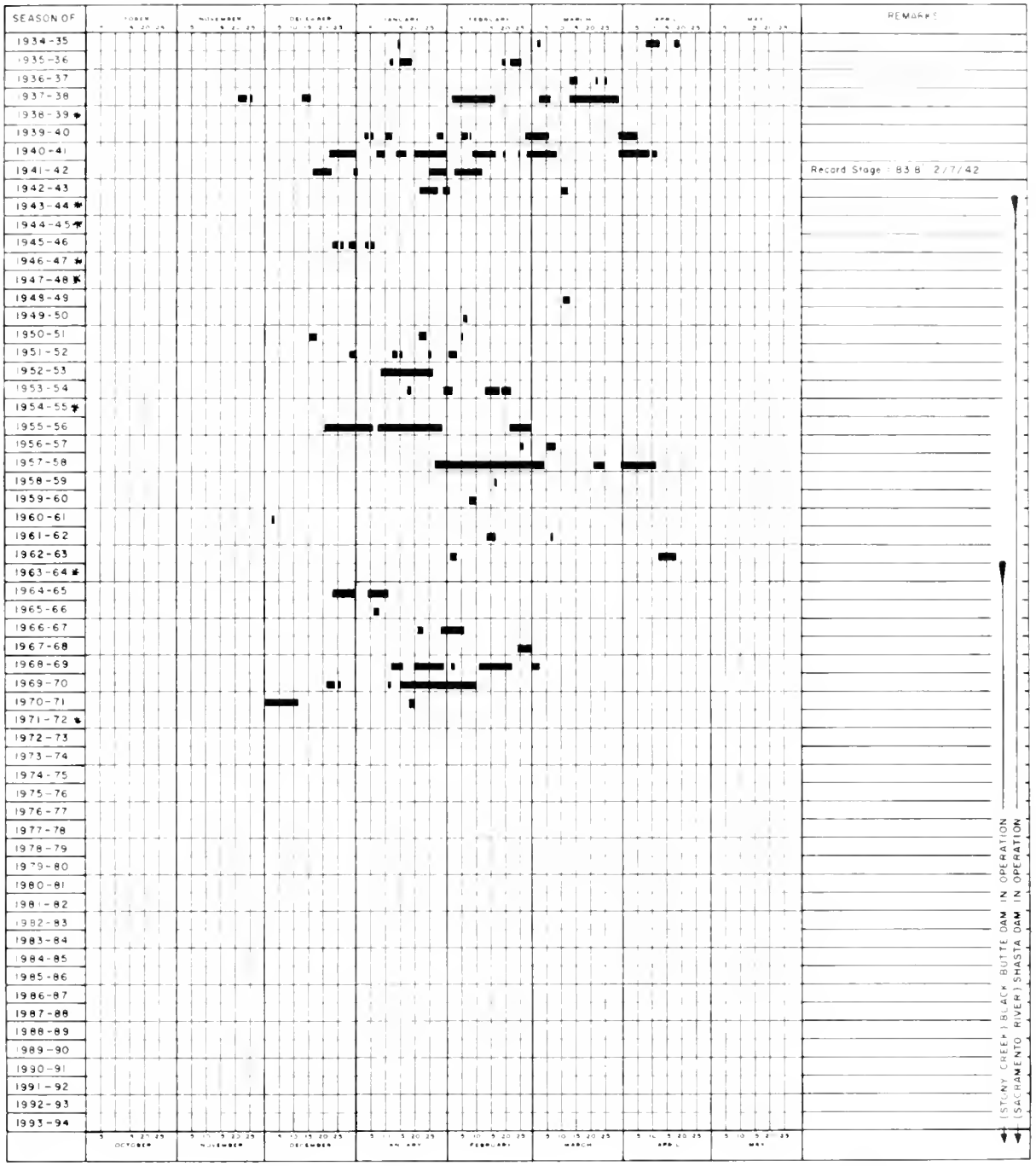
FIGURE A-1



SACRAMENTO RIVER

HISTORICAL CREST PROFILE

PERIOD OF RECORD OF OVERFLOW OF THE MOULTON WEIR



NOTE

Data compiled from records of D.W.R. stream gaging station "Sacramento River at Moulton Weir"

Datum: 0 = 0' U.S.E.D.

Period of record 1935 to present

Crest elevation = 76.75 feet

LEGEND

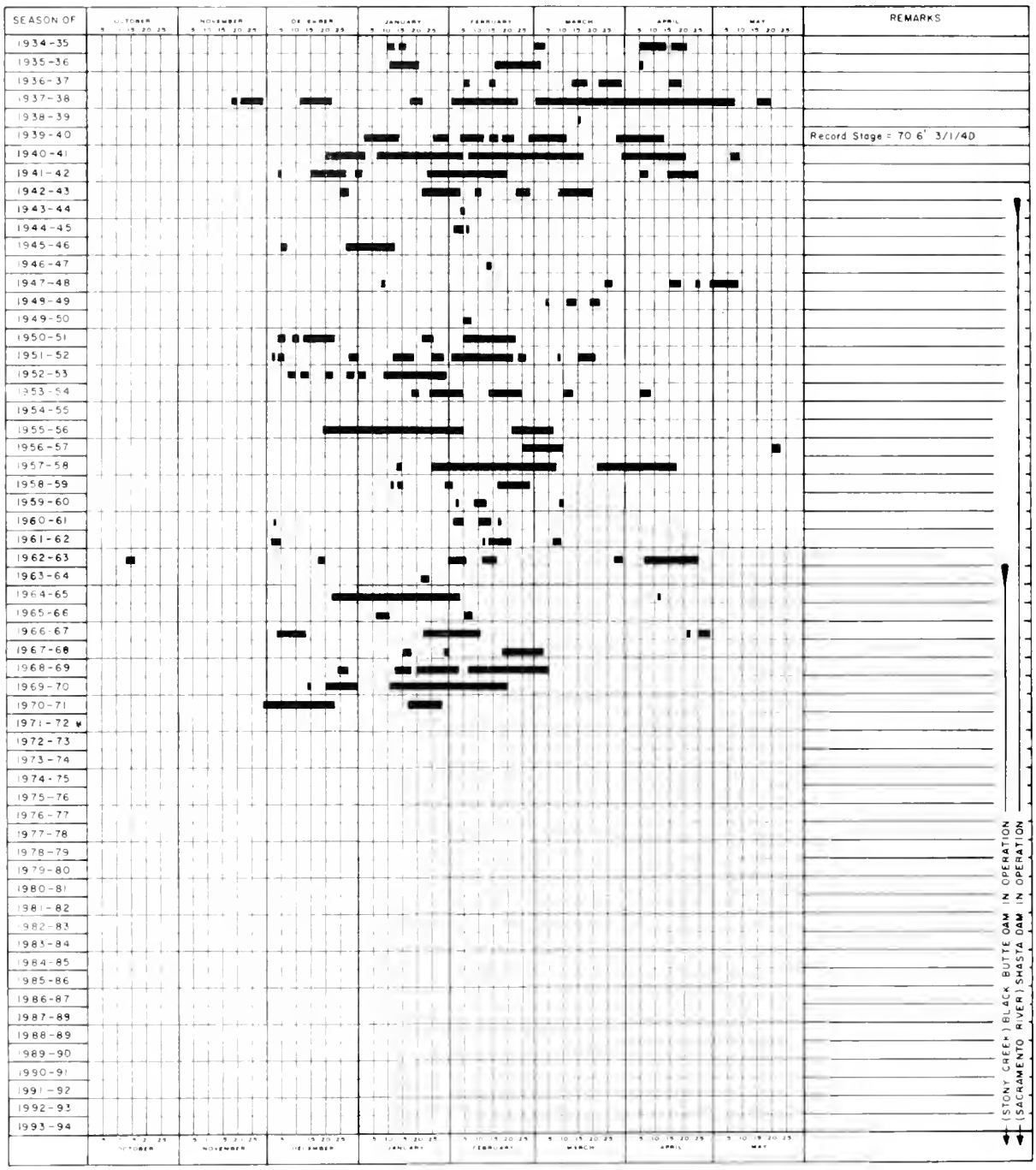
Designates periods of flow over weir

* Designates season of no flow

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

Figure A-3

PERIOD OF RECORD OF OVERFLOW OF THE COLUSA WEIR



NOTE

Data compiled from records of D.W.R. stream gaging station "Sacramento River at Colusa Weir"

Datum: 0.0' U.S.E.D.

Period of record 1935 to present

Crest elevation = 64.80 feet

LEGEND

Designates periods of flow over weir

* Designates season of no flow

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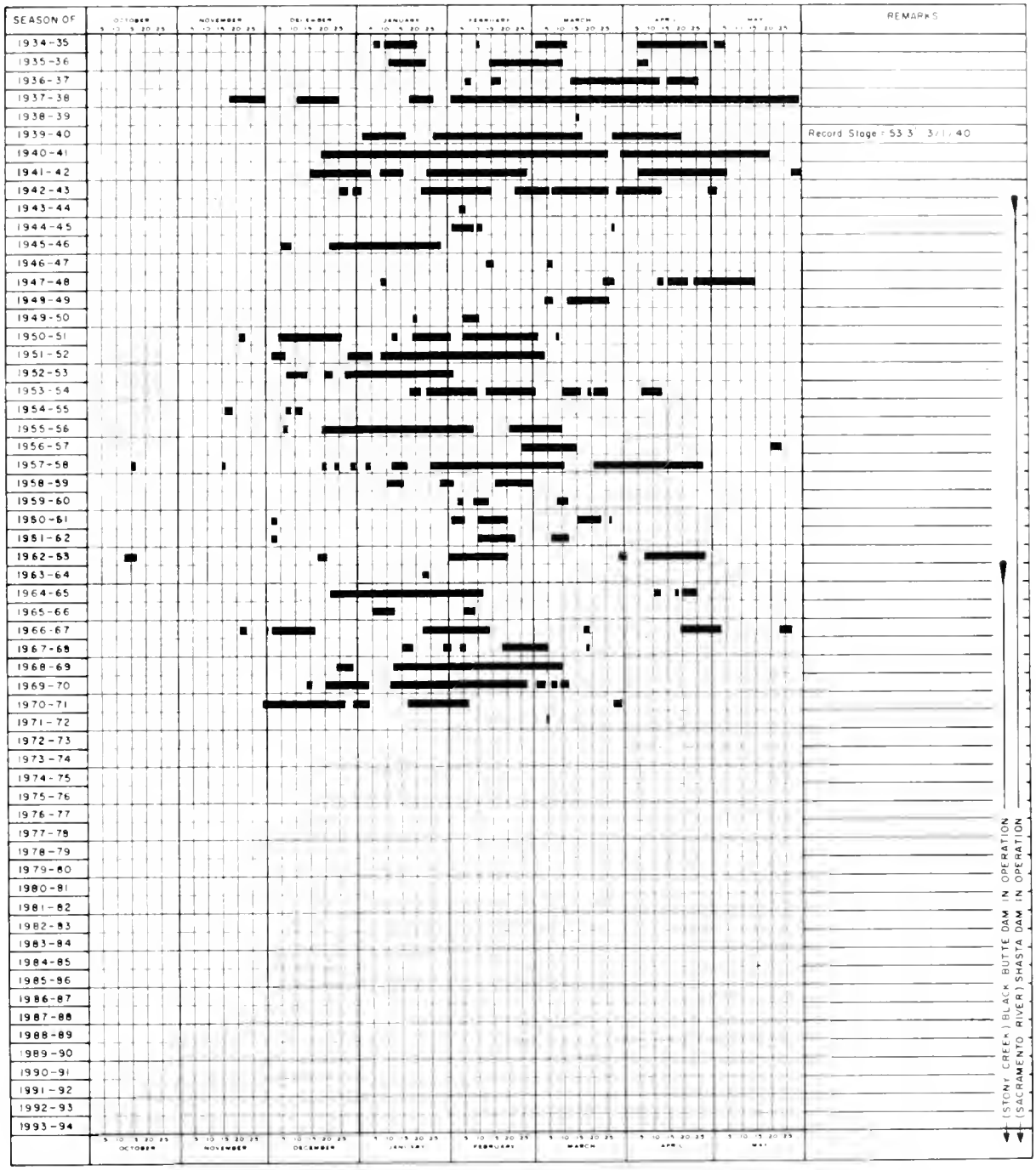
DEPARTMENT OF WATER RESOURCES

Revised 8-72

PERIOD OF RECORD OF OVERFLOW OF THE TISDALE WEIR



NOTE:

Data compiled from records of O.W.R. stream gaging station "Sacramento River at Tisdale Weir"

Datum: 0=0' U.S.E.D.

Period of record: 1935 to present

Crest elevation = 45.45 feet

LEGEND

Designates periods of flow over weir

Designates season of no flow

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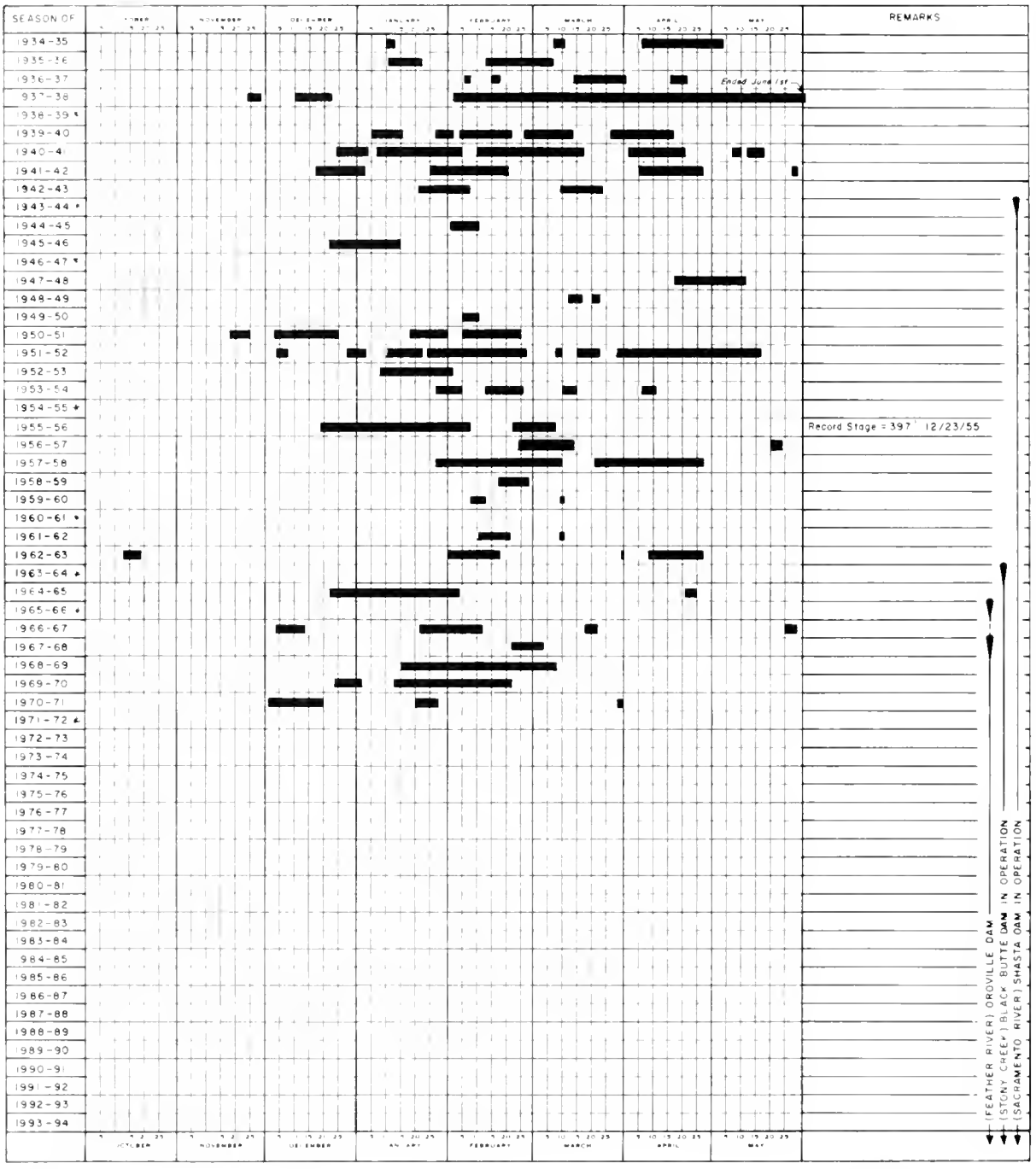
Figure A-5

PERIOD OF RECORD OF OVERFLOW OF THE FREMONT WEIR



NOTE

Data compiled from records of D.W.R. stream gaging station "Sacramento River at Fremont Weir, West End."

Datum: 0'=0' U.S.E.D.

Period of record: 1934 to present

Crest elevation = 33.50 feet

LEGEND

Designates periods of flow over weir

* Designates season of no flow

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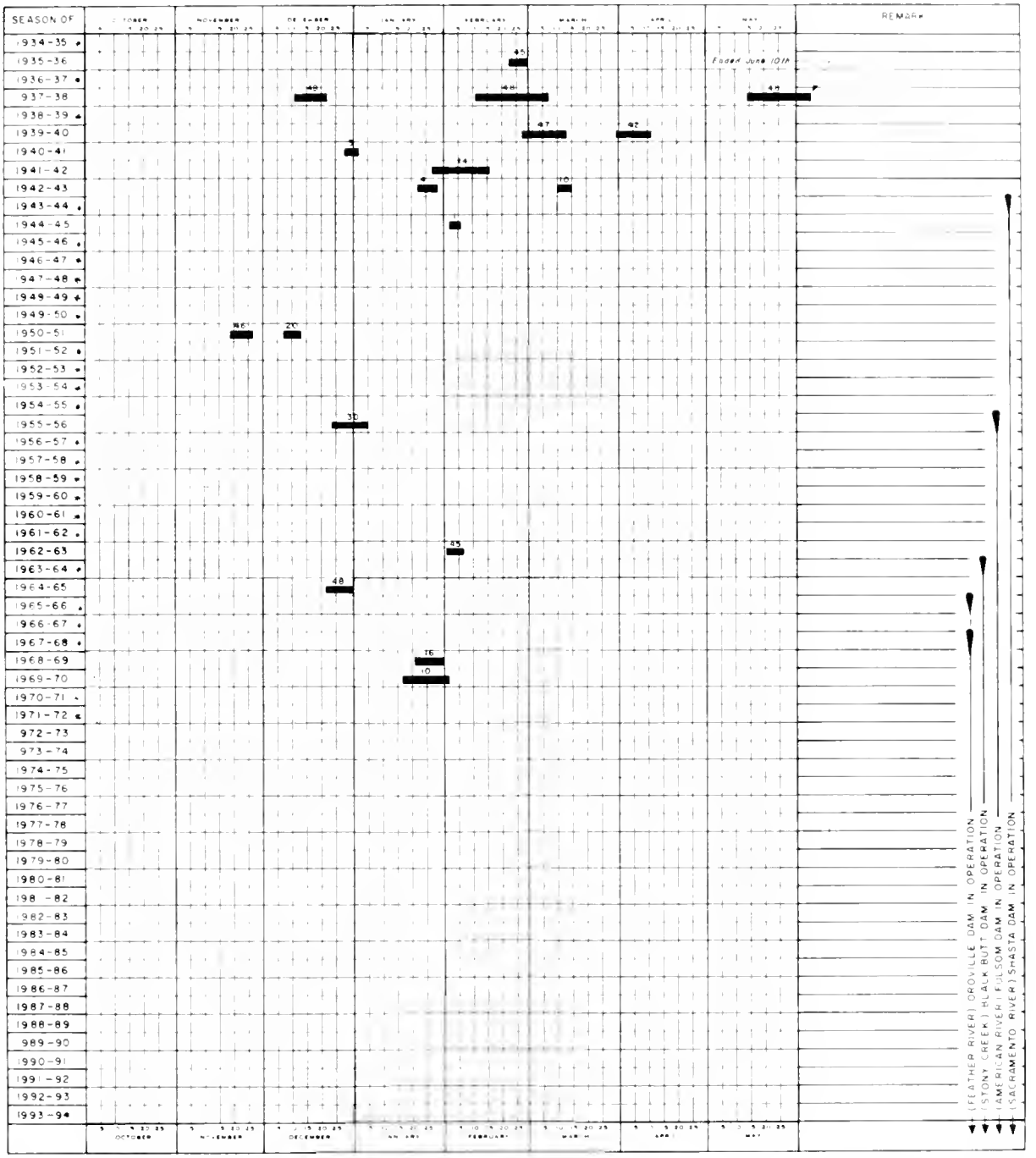
DEPARTMENT OF WATER RESOURCES

PERIOD OF RECORD OF OVERFLOW OF THE SACRAMENTO WEIR



NOTE

Data compiled from records of D.W.R. stream gaging station "Sacramento Weir Spill to Yolo Bypass, near Sacramento"

Datum: 0 = 0' U.S.E.D.

Period of record: 1926 to present

Crest elevation = 24.75 feet

Elevation of top of gates = 31.0 feet

LEGEND

Designates periods of flow over weir and total number of gates opened

Designates season of no flow

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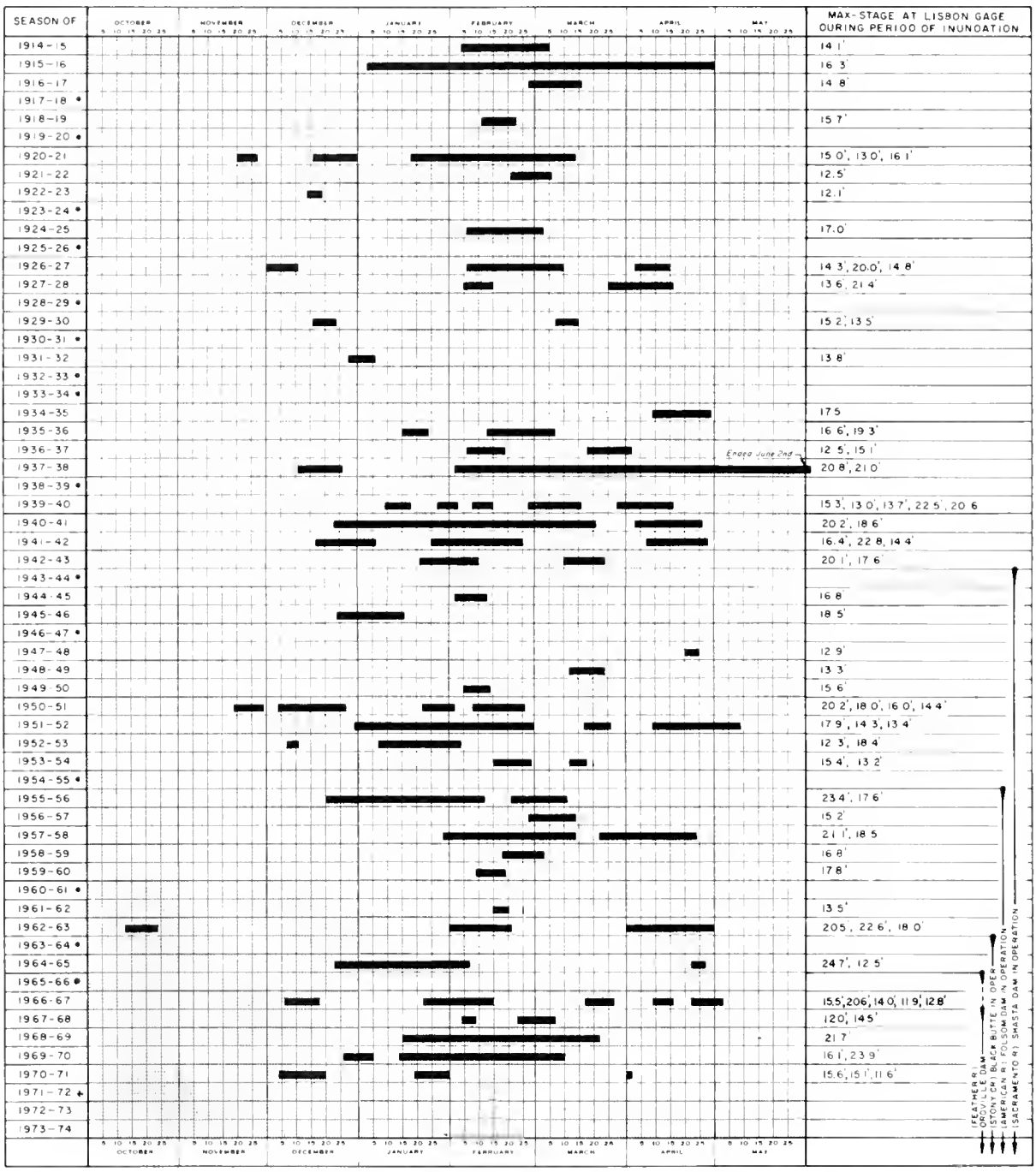
Figure A-7

PERIOD OF RECORD OF INUNDATION OF THE YOLO BYPASS



NOTE

Data compiled from records of D W R stream gaging station "Yolo Bypass near Lisbon."

Datum D=U S E D Datum

Period of Record 1914 to Present

Assumed overflow of Bypass at stage above 11.5' on the Lisbon gage

LEGEND

Designates period of inundation of Bypass

• Designates season Bypass not inundated

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REV. 1/73

APPENDIX B

Peak Flows and Stages
at
Selected Streams and Stations in California

INTRODUCTION

Appendix B presents data for selected stations on representative streams of the major hydrographic areas of California (Figure 1). The data are obtained from USGS Surface Water Records, Department of Water Resources Bulletin No. 130, and U. S. Department of Commerce, NOAA, National Weather Service, Daily River Stage publications. Current water year data are preliminary and are subject to revision.

Stations are listed in a downstream direction along the main stream and tributaries. Stations on tributaries are listed between main stream stations in the order in which the tributaries enter the main stream.

LEGEND

USGS	United States Geological Survey
USBR	United States Bureau of Reclamation
NOAA	National Weather Service (National Oceanic and Atmospheric Admin.)
USCE	United States Corps of Engineers
DWR	Department of Water Resources
PG+E	Pacific Gas and Electric Company
A	From flood marks
B	Discharge over weir or spillway
C	Site or datum then in use
D	Discharge not determined, affected by backwater or tide
E	Estimated
F	From DWR telemetering log
G	Preliminary
H	Includes flow through power plant
I	Due to failure of partially completed dam
J	Gage height revised
K	Flow through power plant not included
L	Discharge at latitude of gaging station site
M	Prior to construction of upstream dam
N	Includes flow through fish hatchery but not upstream diversion to Thermalito Afterbay
P	Observed
Q	Estimated peak inflow to partially completed Oroville Reservoir
R	Regulated stage and flow
S	Revised to current datum
T	Datum of gage is 0=0 USED
U	Crest stage partial recorder
N/A	Not available at report time
*	Peak of record established current year

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1971-1972 WATER YEAR		
				DATE	STAGE IN FEET	DISCHARGE IN CFS	DATE	STAGE IN FEET	DISCHARGE IN CFS
NORTH COASTAL AREA									
SMITH RIVER BASIN									
SMITH RIVER NEAR CRESCENT CITY	609	1931-	USGS	12-22-64	48.5	226,000	1-22-72	43.37	182,000
KLAMATH RIVER BASIN									
SHASTA RIVER NEAR YREKA	793	1933-41 1944-	USGS	12-22-64 12-22-64	12.9 13.9(A)	21,500 - -	3 -3-72	6.92	2,570
SCOTT RIVER NEAR FORT JONES	653	1941-	USGS	12-22-64	25.3(AC)	54,600	3 -3-72	17.14	14,800
KLAMATH RIVER NEAR SEIAD VALLEY	6780	1912-25 1951-	USGS	12-23-64	33.8(A)	165,000	3 -3-72	20.20	55,800
SALMON RIVER AT SOMESBAR	751	1911-15 1927-	USGS	12-22-64	46.6(A)	133,000	3 -2-72	24.84	72,800
KLAMATH RIVER AT ORLEANS	8475	1927-	USGS	12-22-64	76.5(AC)	307,000	3 -3-72	32.82	209,000
TRINITY RIVER ABOVE COFFEE CREEK NEAR TRINITY CENTER	144	1957-	USGS	12-22-64 12-22-64	12.3 13.4(A)	20,800 - -	1-22-72	6.65	3,920
TRINITY RIVER AT LEWISTON	726	1911-	USGS	12-22-55	27.3(AC)	71,600	11-12-71	3.45	270
NORTH FORK TRINITY RIVER AT HELENA	151	1911-13 1957-	USGS-DWR	12-22-64	27.9(A)	35,800	3 -2-72	19.45	12,900
TRINITY RIVER NEAR BURNT RANCH	1439	1931-40 1956-	USGS	12-22-55	43.2(A)	172,000	3 -3-72	17.14	25,400
HAYFORK CREEK NEAR HYAMPOM	378	1953-	USGS	12-22-64	19.1	26,800	3 -3-72	10.66	6,660
WILLOW CREEK NEAR WILLOW CREEK	41	1959-	USGS	12-22-64	20.6(A)	17,000	3 -2-72	10.3	7,600
TRINITY RIVER AT HOOPA	2665	1911-14 1916-18 1931-	USGS	12-22-64	40.3(AC)	231,000	3 -3-72	37.53	97,700
KLAMATH RIVER NEAR KLAMATH	12100	1910-26 1950-	USGS	12-23-64	58.3(A)	557,000	3 -3-72	37.89	360,000
REDWOOD CREEK BASIN									
REDWOOD CREEK AT ORICK	278	1911-13 1953-	USGS	12-22-64	24.0(A)	50,300	3 -3-72	23.67	49,700
LITTLE RIVER BASIN									
LITTLE RIVER AT CRANNELL	44	1955-	USGS	11-24-70 1-17-53	11.48 15.7(A)	8,830 - -	1-22-72	14.06	12,700*
MAD RIVER BASIN									
MAD RIVER NEAR FORREST GLEN	143	1953-	USGS	12-22-55	24.5(A)	34,200	2-24-72	6.73	5,570
MAD RIVER NEAR ARCATA	485	1910-13 1950-	USGS	12-22-55	27.8	77,800	3 -2-72	23.44	56,400
EEL RIVER BASIN									
EEL RIVER BELOW SCOTT DAM NEAR POTTER VALLEY	249	1922-	USGS	12-22-64	24.2(A)	56,300	2-29-72	10.51	4,490
EEL RIVER AT VAN ARSDALE DAM NEAR POTTER VALLEY	344	1904-	USGS	12-22-64	33.4(A)	84,100	2-29-72	14.61	9,340
OUTLET CREEK NEAR LAYTONVILLE	161	1956-	USGS	12-22-64	30.6(A)	77,400	2-29-72	13.38	4,490
BLACK BUTTE RIVER NEAR COVELO	162	1951-	USGS	12-22-64 12-11-37	20.4(A) 36.2(AC)	29,000 - -	1-22-72	19.57	6,780

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1971-1972 WATER YEAR		
				DATE	STAGE IN FEET	DISCHARGE IN CFS	DATE	STAGE IN FEET	DISCHARGE IN CFS
NORTH COASTAL AREA (CONTINUED)									
EEL RIVER BASIN (CONTINUED)									
NORTH FORK EEL RIVER NEAR MINA	248	1953-	USGS	12-22-64	33.6(A)	133,000	1-22-72	15.57	15,500
EEL RIVER AT FORT SEWARD	2107	1955-	USGS	12-22-64	67.2(A,B)	301,000	1-23-72	28.55	66,800
TENMILE CREEK NEAR LAYTONVILLE	50	1957-	USGS	12-22-55	22.9(A)	16,300	1-22-72	11.75	4,080
SOUTH FORK EEL RIVER NEAR MIRANDA	537	1934-	USGS	12-22-64	46.0(A)	199,000	1-23-72	24.26	66,500
ELK CREEK NEAR WILLITS	26	1960-	USGS	12-22-64	20.6(A,B)	6,520	1-22-72	- -	2,600(E)
EEL RIVER AT SCOTIA	3113	1910-	USGS	12-23-64	72.0(A)	752,000	1-23-72	31.62	144,000
VAN DUZEN RIVER NEAR BRIDGEVILLE	222	1950-	USGS	12-22-64	24.0(A)	46,700	1-24-72	16.00	21,200
MATTOLE RIVER BASIN									
MATTOLE RIVER NEAR PETROLIA	240	1911-13 1915-	USGS	12-22-55	29.6(C)	90,400	1-22-72	19.62	42,100
NOYO RIVER BASIN									
NOYO RIVER NEAR FORT BRAGG	106	1951-	USGS	12-22-64	26.3	24,000	1-23-72	12.45	5,770
NAVARRO RIVER BASIN									
NAVARRO RIVER NEAR NAVARRO	303	1950-	USGS	12-22-55	40.6(C)	64,500	1-23-72	7.86	2,700
GUALALA RIVER BASIN									
SOUTH FORK GUALALA RIVER NEAR ANNAPOLIS	161	1950-71	USGS	12-22-55	24.6(C)	55,000	STATION DISCONTINUED		
RUSSIAN RIVER BASIN									
RUSSIAN RIVER NEAR UKIAH	100	1911-13 1952-	USGS	12-21-55	21.0	18,900	1-22-72	14.82	3,190
EAST FORK RUSSIAN RIVER NEAR CALPELLA	92	1941-	USGS	12-22-64	20.2	18,700	1-22-72	12.08	3,010
RUSSIAN RIVER NEAR HOPLAND	362	1939-	USGS	12-22-55 12- -37	27.0 30.0(A)	45,000 - -	1-23-72	12.17	6,760
RUSSIAN RIVER NEAR CLOVERDALE	503	1951-	USGS	12-22-64	31.6(C)	55,200	1-23-72	10.29	6,140
BIG SULPHUR CREEK NEAR CLOVERDALE	82	1957-	USGS	12-22-55	16.8(A)	20,000	1-23-72	5.07	810
RUSSIAN RIVER NEAR HEALDSBURG	793	1939-	USGS	12-23-64 12- -37	27.0 30.8(A)	71,300 - -	1-23-72	6.77	6,590
DRY CREEK NEAR CLOVERDALE	88	1941-	USGS	12-22-64	18.1	18,100	12-27-71	5.43	1,630
DRY CREEK NEAR GEYSERVILLE	162	1959-	USGS	1-31-63	17.5	32,400	12-27-71	6.43	3,460
RUSSIAN RIVER NEAR GUERNEVILLE (SUMMERHOME)	1340	1939-	USGS	12-23-64 12-23-55	42.6(A) 49.7(A)	93,400 - -	12-27-71	14.71	8,390

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD: DATE	PREVIOUS MAXIMUM OF RECORD: STAGE IN FEET	PREVIOUS MAXIMUM OF RECORD: DISCHARGE IN CFS	1971-1972 WATER YEAR: DATE	1971-1972 WATER YEAR: STAGE IN FEET	1971-1972 WATER YEAR: DISCHARGE IN CFS
SAN FRANCISCO BAY AREA									
WALKER CREEK BASIN									
WALKER CREEK NEAR TOMALES	37	1959-	USGS	1- 5-66	22.2	5,420	2 -5-72	18.03	1,430
CORTE MADERA CREEK BASIN									
CORTE MADERA CREEK AT ROSS	18	1951-	USGS	12-22-55	17.5	3,620	12-12-71	8.47	910
NOVATO CREEK BASIN									
NOVATO CREEK NEAR NOVATO	18	1946-	USGS	1-14-70	11.0	2,000	12-26-71	4.58	250
SONOMA CREEK BASIN									
SONOMA CREEK AT AGUA CALIENTE	58	1955-	USGS	12-22-55	17.1(G)	8,880	12-27-71	5.02	620
NAPA RIVER BASIN									
NAPA RIVER NEAR ST. HELENA	81	1929-32 1939-	USGS	12-22-55	16.2	12,600	12-27-71	5.03	1,280
NAPA RIVER NEAR NAPA	218	1929-32 1959-	USGS	1-31-63	27.6	16,900	12-27-71	8.06	1,930
REDWOOD CREEK NEAR NAPA	10	1958-	USGS	1- 5-65	10.4	1,450	1-27-72	3.64	80
PACHECO CREEK BASIN									
SAN RAMON CREEK AT SAN RAMON	6	1952-	USGS	10-13-62	17.0	1,600	2 -5-72	2.37	20
SAN LORENZO CREEK BASIN									
SAN LORENZO CREEK AT HAYWARD	38	1939-40 1946-	USGS	10-13-62 12-22-55	19.7(A) 20.8(A)	7,460 - -	2 -5-72	5.53	500(R)
ALAMEDA CREEK BASIN									
ARROYO MOCHO NEAR PLEASANTON	141	1962-	USGS	2- 1-63	8.60(C)	4,760	12-25-71	9.62	750
ARROYO VALLE NEAR LIVERMORE	147	1912-30 1957-	USGS	12-23-55	13.9(A)	16,200	7-11-72	5.09	900(R)
ARROYO VALLE AT PLEASANTON	171	1957-	USGS	4- 3-58	25.4	11,300	7-25-72	8.58	420(R)
ALAMEDA CREEK NEAR NILES	633	1891-	USGS	12-23-55	14.9	29,000	12-25-71	4.11	3300(R)
PATTERSON CREEK AT UNION CITY	--	1958-	USGS	2- 1-63	20.4(A)	10,500	12-26-71	7.17	1500(R)
ALAMEDA CREEK AT UNION CITY	653	1958-	USGS	2- 1-63	13.3(A)	1,770	12 -2-71	10.28	200(R)
COYOTE CREEK BASIN									
COYOTE CREEK NEAR MADRONE	196	1902-12 1916-	USGS	3- 7-11	- -	25,000	4-12-72	2.53	100(R)
UPPER PENITENCIA CREEK AT SAN JOSE	22	1961-	USGS	1-21-67	6.2	15,000	12-25-71	3.27	10
GUADALUPE RIVER BASIN									
ALAMITOS CREEK NEAR NEW ALMADEN	32	1958-	USGS	4- 2-58	9.7	4,300	1-27-72	1.96	60(R)
LOS GATOS CREEK AT LOS GATOS	39	1929-44 1953-71	USGS	2-2740	14.7(C)	7,110	STATION DISCONTINUED		
GUADALUPE RIVER AT SAN JOSE	144	1929-	USGS	4- 2-58	16.6	9,150	12-21-71	4.18	1,490(R)
SARATOGA CREEK AT SARATOGA	9	1933-	USGS	12-22-55	6.4(C)	2,730	12-27-71	3.41	130
MATADERO CREEK BASIN									
MATADERO CREEK AT PALO ALTO	7	1952-	USGS	12-22-55	9.6	854	12-21-71	2.04	170

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	PREVIOUS MAXIMUM OF RECORD STAGE IN FEET	PREVIOUS MAXIMUM OF RECORD DISCHARGE IN CFS	1971-1972 WATER YEAR DATE	1971-1972 WATER YEAR STAGE IN FEET	1971-1972 WATER YEAR DISCHARGE IN CFS
SAN FRANCISCO BAY AREA (CONTINUED)									
SAN FRANCISQUITO CREEK BASIN									
SAN FRANCISQUITO CREEK AT STANFORD UNIVERSITY	38	1930-41 1950-	USGS	12-22-55	13.6	5,560	12-24-71	1.15	40
CENTRAL COASTAL AREA									
REDWOOD CREEK BASIN									
REDWOOD CREEK AT REDWOOD CITY	2	1959-	USGS	1-31-63	9.4	644	1-27-72	2.98	50
PESCADERO CREEK BASIN									
PESCADERO CREEK NEAR PESCADERO	46	1951-	USGS	12-23-55	21.3	9,420	12-27-71	3.59	210
SAN LORENZO RIVER BASIN									
SAN LORENZO RIVER AT BIG TREES	111	1936-	USGS	12-23-55	22.6	30,400	12-27-71	4.75	1,060
SOQUEL CREEK BASIN									
SOQUEL CREEK AT SOQUEL	40	1951-	USGS	12-23-55	22.3	15,800	12-21-71	4.54	580
PAJARO RIVER BASIN									
BODFISH CREEK NEAR GILROY	7	1959-	USGS	1-31-63	8.3	1,240	2-15-72	3.64	60
TRES PINOS CREEK NEAR TRES PINOS	206	1939-	USGS	4- 4-41	7.8	8,060	12-25-71	4.89	180
SAN BENITO RIVER NEAR HOLLISTER	586	1949-	USGS	4- 3-58	16.3	1,600	1-15-72	3.45	10
PAJARO RIVER AT CHITTENDEN	1186	1939-	USGS	12-24-55 4- 3-58	32.5 33.1	24,000	2-16-72	4.23	180
CORRALITOS CREEK NEAR CORRALITOS	11	1957-	USGS	4- 2-58	7.6	1,970	2-15-72	- -	90(E)
CORRALITOS CREEK AT FREEDOM	28	1956-	USGS	12-22-55	15.6(A)	3,620	2-15-72	3.80	450
SALINAS RIVER BASIN									
SALINAS RIVER NEAR POZO	70	1942-	USGS	1-25-69 1-25-69	13.7 15.5(A)	18,600	12-27-71	12.13	530
SALINAS RIVER ABOVE PILITAS CREEK NEAR SANTA MARGARITA	114	1942-	USGS	1-25-69	14.7	16,600	6-30-72	2.37	360
JACK CREEK NEAR TEMPLETON	25	1949-	USGS	2-24-69	11.3	8,160	12-27-71	5.05	640
ESTRELLA RIVER NEAR ESTRELLA	722	1954-	USGS	2-24-69	10.4(A)	32,500	1-27-72	2.31	10
NACIMIENTO RIVER NEAR BRYSON	140	1955-	USGS	1-25-69	24.6	34,100	12-25-71	16.84	7,890
SALINAS RIVER NEAR BRADLEY	2535	1946-	USGS	2-24-69	20.3(A)	117,000	4-26-72	5.93	580
ARROYO SECO NEAR SOLEDAD	244	1901-	USGS	4- 3-58	16.4	28,300	12-25-71	8.59	4,040
SALINAS RIVER NEAR SPRECKELS	4156	1900-01 1929-	USGS	2-26-69 1-16-52	20.3(C) 26.9(A,C)	83,100 - -	12-27-71	7.36	1,450
CARMEL RIVER BASIN									
CARMEL RIVER AT ROBLES DEL RIO	193	1957-	USGS	4- 2-58 12-23-55	10.5 11.7(A)	7,100 8,930	12-27-71	4.95	590
BIG SUR RIVER BASIN									
BIG SUR RIVER NEAR BIG SUR	47	1950-	USGS	4- 2-58	11.6	5,680	12-25-71	6.23	1,200

PEAK FLOWS AND STAGES (CONTINUED)

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1971-1972 WATER YEAR		
				DATE	STAGE IN FEET	DISCHARGE IN CFS	DATE	STAGE IN FEET	DISCHARGE IN CFS
CENTRAL COASTAL AREA (CONTINUED)									
ARROYO DE LA CRUZ BASIN									
ARROYO DE LA CRUZ NEAR SAN SIMEON	41	1950-	USGS	12- 6-66	15.3	35,200	12-26-71	7.48	4,620
SANTA ROSA CREEK BASIN									
SANTA ROSA CREEK NEAR CAMBRIA	13	1957-	USGS	1-25-69	12.0	3,350	12-26-71	4.96	270
				12- -55	15.2(A)	- -			
SANTA MARIA RIVER BASIN									
SISQUOC RIVER NEAR GAREY	471	1940-	USGS	1-25-69	13.0	24,500	12-27-71	5.55	750
SANTA MARIA RIVER AT GUADALUPE	1741	1940-	USGS	1-16-52	8.2(C)	32,800	12-25-71	5.25	10(K)
SANTA YNEZ RIVER BASIN									
SANTA YNEZ RIVER BELOW GIBRALTAR DAM NEAR SANTA BARBARA	216	1920-	USGS	1-25-69	25.8	54,200	12-27-71	8.69	50
SANTA CRUZ CREEK NEAR SANTA YNEZ	74	1941-	USGS	2-24-69	14.5(A)	7,050	12-25-71	3.90	440
SAN JOSE CREEK BASIN									
SAN JOSE CREEK NEAR GOLETA	6	1941-	USGS	1-25-69	10.1	2,000	12-27-71	5.47	430
				1-21-43	12.7	- -			
ATASCADERO CREEK BASIN									
ATASCADERO CREEK NEAR GOLETA	19	1941-	USGS	1-25-69	13.0	5,230	12-27-71	10.47	2,470
CARPINTERIA CREEK BASIN									
CARPINTERIA CREEK NEAR CARPINTERIA	13	1941-	USGS	1-25-69	16.9(AE)	4,560	12-27-71	14.8	8,880*
SOUTH COASTAL AREA									
VENTURA CREEK BASIN									
MATILIJA CREEK AT MATILIJA HOT SPRINGS	55	1927-	USGS	1-25-69	16.5	20,000	12-29-71	4.17	580
VENTURA RIVER NEAR MEINERS OAKS	76	1959-	USGS	1-25-69	- -	28,000(E)	12-29-71	5.85	210
COYOTE CREEK NEAR OAK VIEW	13	1958-	USGS	1-25-69	12.0	8,000	12-27-71	9.41	1,680
VENTURA RIVER NEAR VENTURA	188	1911-14 1929-	USGS	1-25-69	24.3(A)	56,000	12-27-71	8.95	2,080
SANTA CLARA RIVER BASIN									
SAN CLARA RIVER AT LOS ANGELES-VENTURA CO. LINE	644	1952-	USGS	1-25-69	19.0	68,800	12-27-71	6.48	580
PIRU CREEK ABOVE LAKE PIRU	372	1955-	USGS	2-25-69	18.6(A)	31,200	12-24-71	6.49	1,190
SESPE CREEK NEAR FILLMORE	251	1911-13 1927-	USGS	1-25-69	20.8	60,000	12-24-71	15.83	3,660
				2-25-69	25.0(A)	- -			
SANTA PAULA CREEK NEAR SANTA PAULA	40	1927-	USGS	2-25-69	15.2(A)	21,000	12-25-71	6.64	940
MALIBU CREEK BASIN									
MALIBU CREEK AT CRATER CAMP NEAR CALABASAS	105	1931-	USGS	1-25-69	21.4	33,800	12-27-71	7.51	2,260
BALLONA CREEK BASIN									
BALLONA CREEK NEAR CULVER CITY	90	1928-	USGS	11-21-67	14.7	32,500	12-27-71	7.47	2,180

PEAK FLOW STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD DATE	STAGE IN FEET	DISCHARGE IN CFS	1971-1972 WATER YEAR DATE	STAGE IN FEET	DISCHARGE IN CFS
SOUTH COASTAL AREA (CONTINUED)									
LOS ANGELES RIVER BASIN									
LOS ANGELES RIVER AT SEPULVEDA DAM	154	1939-	USGS	1-25-69	11.4	13,800	12-27-71	7.52	7,580
LOS ANGELES RIVER AT LOS ANGELES	514	1927-	USGS	3- 2-38	- -	67,000	12-24-71	5.84	13,700
ARROYO SECO NEAR DOWNEY	143	1928-	USGS	1-25-69	15.2	46,900	12-24-71	6.41	11,400
SANTA ANA RIVER BASIN									
SANTA ANA RIVER NEAR MENTONE	209	1896-	USGS	3- 2-38	14.3(C)	52,300	12-24-71	6.20	1,980
SAN GABRIEL RIVER BELOW SANTA FE DAM NEAR BALDWIN PARK	236	1942-	USGS	1-26-69	22.2	30,700	12-24-71	10.33	10
SANTA ANA RIVER AT "E" ST NEAR SAN BERNARDINO	532	1934-54 1966-	USGS	2-25-69	16.5	24,000	12-24-71	6.41	3,940
MILL CREEK NEAR YUCAIPA	42	1914-38 1947-	USGS	1-25-69	16.8(A)	35,400	12-24-71	8.13	240
LYTLE CREEK NEAR FONTANA	46	1918-	USGS	1-25-69	15.0(A)	35,900	12-24-71	6.95	1,360
CAJON CREEK NEAR KEENBROOK	41	1919-	USGS	3- 2-38	29.0(C)	14,500			N/A
SANTA ANA RIVER AT RIVERSIDE NARROWS NEAR ARLINGTON	855	1927-	USGS	3- 2-38	- -	100,000	12-24-71	10.41	5,200
SAN JACINTO RIVER NEAR SAN JACINTO	141	1920-	USGS	2-16-27	- -	45,000	12-25-71	10.99	370
SANTIAGO CREEK AT MODJESKA	13	1961-	USGS	2-25-69	6.2	6,520	12-25-71	4.11	200
SANTIAGO CREEK AT SANTA ANA	95	1928-	USGS	2-25-69 1-16-52	9.1(C) 9.8	6,600 - -	12-27-71	4.49	210
SAN JUAN CREEK BASIN									
SAN JUAN CREEK NEAR SAN JUAN CAPISTRANO	106	1928-	USGS	2-25-69	5.6(AC)	22,400	12-27-71	4.00	110
SANTA MARGARITA RIVER BASIN									
SANTA MARGARITA RIVER NEAR TEMECULA	584	1923-	USGS	2-16-27	14.6(C)	22,000	12-24-71	3.74	370
SANTA MARGARITA RIVER AT YSIDORA	739	1923-	USGS	2-16-27	18.0(C)	33,600			NO FLOW
SAN LUIS REY RIVER BASIN									
SAN LUIS REY RIVER AT MONSERATE NARROWS NR PALA	373	1935-41 1946-	USGS	2- 7-37	8.7(C)	- -			NO FLOW
SAN LUIS REY RIVER NEAR BONSALL	512	1916-18 1929-	USGS	3- 3-38	16.0	18,100	12-25-71	7.77	80
SAN DIEGUITO RIVER BASIN									
SANTA YSABEL CREEK NEAR RAMONA	112	1912-23 1943-	USGS	1-27-16	14.0(C)	28,400	12-28-71	2.27	5
SANTA YSABEL CREEK NEAR SAN PASQUAL	128	1905-12 1947-	USGS	3-24-06	6.3(C)	6,000			NO PEAK(R)
SAN DIEGO RIVER BASIN									
SAN DIEGO RIVER NEAR SANTEE	377	1912-	USGS	1-27-16	25.1(C)	70,200	12-28-71	3.75	210
SWEETWATER RIVER BASIN									
SWEETWATER RIVER NEAR DESCANSO	46	1905-27 1956-	USGS	2-16-27	13.2(AC)	11,200	12-27-71	3.60	10
TIJUANA RIVER BASIN									
TIJUANA RIVER NEAR DULZURA	481	1936-	USGS	2- 7-37	8.5	4,700	6 -6-72	3.23	70

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CENTRAL VALLEY AREA									
SACRAMENTO RIVER BASIN									
SACRAMENTO RIVER AT DELTA	425	1944-	USGS	12-22-64	20.1	38,800	2-28-72	10.16	8,260
PIT RIVER NEAR BIEBER	2475	1904-31 1951-	USGS	3-19-07	16.7	33,800	3-1-72	9.78	8,790
PIT RIVER BELOW PIT NO.4 DAM	4647	1922-	USGS	1-25-70	18.1	32,500(E)	3-3-72	10.70	8,120
MCCLOUD RIVER ABOVE SHASTA LAKE	604	1945-	USGS	12-22-55	28.2	45,200	4-6-72	15.47	5,570
SACRAMENTO RIVER AT KESWICK	6468	1938-	USGS-DWR	2-23-40	47.2(C)	186,000	3-17-72	16.71	15,700
CLEAR CREEK AT FRENCH GULCH	115	1950-	USGS	12-22-64	13.7	7,600	1-22-72	8.07	2,040
CLEAR CREEK NEAR IGO	228	1940-	USGS	12-21-55	13.8	24,500	3-22-72	4.20	620
COW CREEK NEAR MILLVILLE	425	1949-	USGS	12-27-51	21.6	45,200	12-22-71	9.84	8,970
COTTONWOOD CREEK NEAR COTTONWOOD	922	1940-	USGS	12-22-64	13.6	60,000	1-23-72	9.39	4,670
BATTLE CREEK BELOW COLEMAN FISH HATCHERY NEAR COTTONWOOD	358	1961-	USGS	12-11-37	15.8(A,C)	35,000	2-29-72	5.01	2,390
SACRAMENTO RIVER AT BEND BRIDGE	--	1960-	DWR	1-24-70	43.3	158,000	2-29-72	26.60	32,100
PAYNES CREEK NEAR RED BLUFF	93	1949-	USGS	12-1-61	11.3	10,600		9.20	5,890(D)
RED BANK CREEK NEAR RED BLUFF	94	1948-	DWR	1-5-65	10.1	9,730	12-22-71	4.42	40
ANTELOPE CREEK NEAR RED BLUFF	123	1940-	USGS	1-23-70	18.0	17,200	12-22-71	7.63	1,070
ELDER CREEK NEAR PASKENTA	93	1948-	USGS	2-24-58	13.9(C)	11,700	1-23-72	3.17	440
MILL CREEK NEAR LOS MOLINOS	131	1907-13 1928-	USGS	12-11-37	23.4(A)	36,400	2-28-72	5.52	1,470
THOMES CREEK AT PASKENTA	174	1920-	USGS-DWR	12-22-64	15.3	37,800	1-22-72	9.12	5,900(E)
DEER CREEK NEAR VINA	208	1911-15 1920-	USGS-DWR	12-10-37	17.2(A)	23,800	12-22-71	5.84	2,150
SACRAMENTO RIVER AT VINA BRIDGE	--	1945-	DWR	1-24-70 1-24-70	131.5(T) - -	171,000 228,000(E)	2-29-72	124.92	36,500
SACRAMENTO RIVER AT HAMILTON CITY (BEFORE SHASTA DAM)	--	1927-43	DWR	12-11-37	150.7(C,T)	350,000(E,L)			
SACRAMENTO RIVER AT HAMILTON CITY (AFTER SHASTA DAM)	--	1944-	DWR	1-24-70	150.8(T)	156,000	2-29-72	134.98	32,700
BIG CHICO CREEK NEAR CHICO	72	1930-	USGS	1-5-65	15.4	9,580	12-22-71	5.56	1,220
STONY CREEK NEAR ORD	598	1901-12 1960-	USGS	12-23-64	15.7	40,200	1-23-72	8.42	4,360
STONY CREEK NEAR HAMILTON CITY	777	1940-	USGS	2-25-58	14.3	39,300	4-24-72	7.05	501
SACRAMENTO RIVER AT ORD FERRY (BEFORE SHASTA DAM)	--	1921-43	DWR	2-28-40	121.7(T)	370,000(E,L)			
SACRAMENTO RIVER AT ORD FERRY (AFTER SHASTA DAM)	--	1944-	DWR	1-24-70	117.6(T)	265,000(E,L)	2-24-72	102.74	28,100
SACRAMENTO RIVER AT BUTTE CITY (BEFORE SHASTA DAM)	--	1921-43	USGS-DWR	2-7-42	96.4	170,000			

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CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
SACRAMENTO RIVER AT BUTTE CITY (AFTER SHASTA DAM)	--	1944-	USGS-DWR	2-20-58 1-24-70	96.7 - -	160,000 225,000(L)	3 -1-72	78.04	27,500
MOULTON WEIR SPILL TO BUTTE BASIN	--	1935-	DWR	1-25-70 2- 7-42	83.6 83.8	36,400(B) - -			NO FLOW
COLUSA WEIR SPILL TO BUTTE BASIN	--	1935-	DWR	3- 1-40	70.6	86,000(B)			NO FLOW
SACRAMENTO RIVER AT COLUSA	12110	1940-	USGS-DWR	2- 8-42	69.2	49,000	3 -5-72	56.36	24,900
COLUSA BASIN DRAIN AT HIGHWAY 20	--	1924-	DWR	2-21-56	51.9	25,400(E)			N/A
BUTTE CREEK NEAR CHICO	147	1930-	USGS	12-22-64	14.1	21,200	1-22-72	3.71	1,870
BUTTE SLOUGH NEAR MERIDIAN	--	1968-	DWR	1-26-70	61.5(E)	152,000(E)	1-25-72	45.44	930
SUTTER BYPASS AT LONG BRIDGE	--	1914-	DWR	3- 1-40	57.7	210,000	STATION DISCONTINUED		
TISDALE WEIR SPILL TO SUTTER BYPASS	--	1940-	DWR	3- 1-40	53.3	25,700(B)	3 -5-72	45.62	280
SACRAMENTO RIVER BELOW WILKINS SLOUGH	12926	1938-	USGS	1-26-70 3- 1-40	50.7 52.8	29,300 - -	3 -5-72	44.93	25,100
SACRAMENTO RIVER AT KNIGHTS LANDING	14541	1921-39 1940-	USGS-DWR	1-26-70 2- 8-42	40.7 41.8(D)	30,800 - -	3 -6-72	24.29	24,500
MIDDLE FORK FEATHER RIVER NEAR CLIO	686	1925-	USGS	2- 1-63	16.2	14,500	2-29-72	8.51	1,400
MIDDLE FORK FEATHER RIVER NEAR MURRIMAC	1062	1951-	USGS	12-22-64	26.5(A)	86,200	2-29-72	10.34	2,660
NORTH FORK FEATHER RIVER NEAR PRATTVILLE	473	1905-	USGS	3-19-07	16.2(C)	10,000	1-13-72	5.75	1,180(E)
BUTT CREEK BELOW ALMADOR-BUTT CREEK TUNNEL NEAR PRATTVILLE	69	1936-59 1964-	USGS	12-23-64	5.9	3,830	4 -5-72	1.74	410(E)
INDIAN CREEK NEAR CRESCENT MILLS	739	1906-18 1930-	USGS	3-19-07	20.2(C)	25,000	3 -4-72	7.76	4,180
SPANISH CREEK ABOVE BLACKHAWK CREEK AT KEDDIE	164	1933-	USGS	12-22-64	13.5	15,400	2-29-72	6.09	2,700
NORTH FORK FEATHER RIVER AT PULGA	1353	1910-	USGS	12-22-64	35.6	73,000(H)	3 -3-72	11.98	7,250
WEST BRANCH FEATHER RIVER NEAR PARADISE	110	1957-	USGS-DWR	12-22-64	26.2(A)	26,300	1-22-72	9.84	3,080
FEATHER RIVER AT OROVILLE (BEFORE OROVILLE DAM)	3624	1874-87	USGS-DWR NOAA	3-19-07 12-22-64	28.2 - -	230,000(CP) 252,000(Q)			
FEATHER RIVER AT OROVILLE (AFTER OROVILLE DAM)	3624	1967-	USGS-DWR	1-25-70	15.3	56,300(N)	4-27-72	1.[illegible]	2,260(G)
THERMALITO AFTERBAY RELEASE TO FEATHER RIVER NEAR OROVILLE	--	1967-	USGS-DWR	1-28-70	23.3	21,600	2 -8-72	7.21	11,500
FEATHER RIVER NEAR GRIDLEY (BEFORE OROVILLE DAM)	3676	1929-67	USGS-DWR	12-23-55	102.2(T)	- -			
FEATHER RIVER NEAR GRIDLEY (AFTER OROVILLE DAM)	3676	1967-	USGS-DWR	1-27-70	42.8(I)	74,900	2 -9-72	23.77	11,600
SOUTH HONCUT CREEK NEAR BANGOR	31	1950-	USGS	12-26-64	14.3	17,600	12-24-71	6.36	400

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CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
FEATHER RIVER AT YUBA CITY	3974	1943-	USGS-DWR	12-23-64 12-24-55	76.4 82.4	172,000 - -	2-10-72	65.39	- -(D)
NORTH YUBA RIVER BELOW GOODYEARS BAR	250	1950-	USGS	2- 1-63	23.8(A)	40,000	1-24-72	7.[illegible]	3,24[illegible]
NORTH YUBA RIVER BELOW NEW BULLARDS BAR DAM	490	1940-	USGS	1-22-70 12-22-64	35.3 40.5(C)	56,200 91,600(M)	2-25-72	4.24	20
SOUTH YUBA RIVER NEAR CISCO	52	1942-	USGS	1-31-63	20.6(A)	15,400	5-14-72	6.43	1,45[illegible]
SOUTH YUBA RIVER AT JONES BAR NEAR GRASS VALLEY	308	1940-48 1959-	USGS	12-22-64	25.0(A)	53,600	1-23-72	9.55	2,78[illegible]
YUBA RIVER ENGLEBRIGHT DAM	1108	1941-	USGS	12-22-64	548.1	171,000(R)			40 SPILL(D)
DEER CREEK NEAR SMARTVILLE	85	1955-	USGS	10-13-62	13.5	14,600	2 -4-72	6.77	2,63[illegible]
YUBA RIVER NEAR MARYSVILLE	1339	1940-	USGS	12-22-64	90.2	180,000	12-25-71	64.43	[illegible],190
BEAR RIVER NEAR WHEATLAND	292	1928-	USGS	12-22-55 11-21-50	19.3(C) 20.8(C)	33,000 - -	2-25-72	3.37	[illegible],8[illegible]
FEATHER RIVER AT NICOLAUS	5920	1943-	USGS-DWR	12-23-55	51.6	357,000	2-26-72	29.32	14,100
FREMONT WEIR (WEST END) SPILL TO YOLO BYPASS	--	1934-	DWR	12-23-55	39.7	294,000(D)			NO FLOW
SACRAMENTO RIVER AT VERONA	21257	1929-	USGS-DWR	3- 1-40	41.2	79,200	3 -[illegible]-72	21.74	[illegible],000
SACRAMENTO WEIR SPILL TO YOLO BYPASS NEAR SACRAMENTO	--	1926-	USGS-DWR	3-26-28 12-23-55	32.8 33.0	116,000(DE - -			NO FLOW
NORTH FORK AMERICAN RIVER AT NORTH FORK DAM	342	1941-	USGS	12-23-64	11.9	65,400	1-23-72	3.24	5,620
RUBICON RIVER NEAR FORESTHILL	315	1958-	USGS	12-23-64	55.4(A,I)	- -	2-27-72	9.16	1,140
MIDDLE FORK AMERICAN RIVER NEAR FORESTHILL	524	1958-	USGS	12-23-64	69.0(A,I)	310,000(I)			N/A
MIDDLE FORK AMERICAN RIVER NEAR AUBURN	614	1911-	USGS	12-23-64	60.4(A,I)	253,000(I)	2-29-72	9.60	3,350
SOUTH FORK AMERICAN RIVER NEAR CAMINO	493	1922-	USGS	12-23-55	32.6(A)	49,800	4-24-72	6.08	70(R)
SOUTH FORK AMERICAN RIVER NEAR LOTUS	673	1951-	USGS	12-23-55	21.4	71,800	5-20-72	7.92	3,390(R)
AMERICAN RIVER AT FAIR OAKS (BEFORE FOLSOM DAM)	1888	1904-55	USGS	11-21-50	31.9(C)	180,000			
AMERICAN RIVER AT FAIR OAKS (AFTER FOLSOM DAM)	1888	1955-	USGS	12-23-64	21.6	115,000	2 -9-72	8.89	6,06[illegible]
SACRAMENTO RIVER AT SACRAMENTO	23530	1879-	USGS-DWR NOAA	11-21-50	30.11(C)	104,000	3 -6-72	10.29	33,300
SACRAMENTO RIVER AT WALNUT GROVE	--	1929-	DWR	12-25-64	12.2	- -	12-28-71	5.26	- -(D)
AUDBE CREEK NEAR KELSEYVILLE	6	1954-	USGS	12-22-64	9.1	1,500	12-24-71	6.03	340
KELSEY CREEK NEAR KELSEYVILLE	37	1946-	USGS	12-21-55	12.8	8,800	12-22-71	8.34	1,790
CACHE CREEK NEAR LOWER LAKE	528	1944-	USGS	2-24-58	9.4	8,000	7-14-72	3.65	490

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CENTRAL VALLEY AREA (CONTINUED)									
SACRAMENTO RIVER BASIN (CONTINUED)									
NORTH FORK CACHE CREEK NEAR LOWER LAKE	147	1930-	USGS	12-11-37	14.0(A)	20,300	1-23-72	5.25	1,250
CACHE CREEK ABOVE RUMSEY	935	1960-	USGS-DWR	1- 5-65	21.4(A)	59,000	2 -3-72	4.90	1,100
CACHE CREEK NEAR CAPAY	1044	1942-	USGS	2-24-58	20.4	51,600	2 -5-72	4.44	950
CACHE CREEK AT YOLO	1139	1903-	USGS	2-25-58 3-10-04	25.4 28.4(P)	41,400 - -	12-27-71	22.13	920
YOLO BYPASS NEAR WOODLAND	--	1939-	USGS-DWR	2- 8-42	32.0	272,000	2 -7-72	12.33	450
DRY CREEK NEAR MIDDLETOWN	8	1959-	USGS	2- 8-60	7.9	3,470	1-22-72	5.66	490
PUTAH CREEK NEAR WINTERS	574	1930-	USGS-DWR	2-27-40	30.5	81,000	7-16-72	8.22	760
YOLO BYPASS NEAR LISHON	--	1914-	DWR	12-25-64	24.7	356,000(E)	12-29-71	6.03	- -(D)
SACRAMENTO RIVER AT RIO VISTA	--	1906-	DWR	12-26-55	10.2	- -(D)	11-30-71	8.32	- -(D)
SAN JOAQUIN RIVER BASIN									
WILLOW CREEK AT MOUTH NEAR AUBERRY	130	1952-	USGS	12-23-55	28.5(A)	15,700	12-22-71	8.24	530
SAN JOAQUIN RIVER BELOW KIRCHOFF POWERHOUSE NEAR PRATHER	1481	1942-	USGS-	12-23-55	51.0(A)	92,200	3-15-72	16.49	4,600(R)
SAN JOAQUIN RIVER BELOW FRIANT	1676	1907-	USGS	12-11-37 6- 6-69	23.8(CM) 11.7	77,200(M) 12,400	6 -6-72	2.72	210
SAN JOAQUIN RIVER NEAR MENDOTA	4310	1939-	USBR-DWR	6- 1-52 6-20-41	- - 13.8(C)	8,840 11,740(M)	8 -7-72	4.32	930
FRESNO RIVER NEAR KNOWLES	133	1911-13 1915-	USGS	12-23-55	11.5	13,300	12 -6-71	3.35	220
FRESNO RIVER NEAR DAULTON	258	1941-	USGS	12-23-55	12.6	17,500	12-26-71	2.46	370
CHOWCHILLA RIVER NEAR RAYMOND	232	1959-	USGS	2-24-69	20.0(S)	13,760	12-26-71	4.41	630
EASTSIDE BYPASS NEAR EL NIDO	--	1964-	DWR	2-25-69	17.6	21,700			NO FLOW
SAN JOAQUIN RIVER AT FREMONT FORD BRIDGE	7610	1937-	DWR	2-26-69	58.1	4,180	2 -8-72	56.41	390
MERCED RIVER AT POHONO BRIDGE NEAR YOSEMITE	321	1916-	USGS	12-23-55	21.5(A)	23,400	6 -8-72	7.49	3,270
SOUTH FORK MERCED RIVER NEAR EL PORTAL	241	1950-	USGS	12-23-55	18.7	46,500	12-22-71	9.34	2,940
MERCED RIVER NEAR BRICEBURG	671	1965-	USGS	1- 6-66	17.8	21,500	6 -8-72	9.30	5,750
MERCED RIVER NEAR STEVINSON	1273	1940-	USGS	12- 5-50	73.8	13,600	2 -7-72	60.75	1,160
SAN JOAQUIN RIVER NEAR NEWMAN	9520	1912-	USGS-DWR	2-26-69	65.9(A)	34,700(L)	1-21-72	51.38	1,530
ORESTIMBA CREEK NEAR NEWMAN	134	1932-	USGS	4- 2-58	6.6(C)	10,200			NO FLOW
SOUTH FORK TUOLUMNE RIVER NEAR OAKLAND RECREATION CAMP	87	1923-	USGS	12-23-55	10.3(A)	11,900	2-22-71	4.91	780
MIDDLE TUOLUMNE RIVER AT OAKLAND RECREATION CAMP	74	1916-	USGS	12-23-55	11.6(A)	4,920	12-25-71	5.02	640
TUOLUMNE RIVER AT MODESTO	1884	1940-	USGS-DWR	12- 9-50	69.2	57,000	10-16-71	42.75	2,140

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CENTRAL VALLEY AREA (CONTINUED)									
SAN JOAQUIN RIVER BASIN (CONTINUED)									
SOUTH FORK STANISLAUS RIVER NEAR LONG BARN	67	1937-	USGS	11-21-50	9.3	4,900	5-12-72	4.81	790(R)
STANISLAUS RIVER AT ORANGE BLOSSUM BRIDGE	--	1928-39 1940-	DWR	12-23-55	31.8	62,000	12-28-71	6.99	2,580
STANISLAUS RIVER AT RIPON	1075	1940-	USGS-DWR	12-24-55 2-12-38	63.3 64.4(A)	62,500 - -	12-28-71	44.61	2,090
SAN JOAQUIN RIVER NEAR VERNALIS	13540	1922-	USGS-DWR	12- 9-50 1-27-69	32.8(C) 34.6	73,000 52,600	12-30-71	13.73	3,930
DUCK CREEK NEAR STOCKTON	--	1950-	DWR	12-24-55	5.6	400	12-28-71	4.84	320
SOUTH FORK CALAVERAS RIVER NEAR SAN ANDREAS	116	1950-	USGS	12-23-55	10.3	17,600	12-25-71	6.87	3,500
MORMON SLOUGH AT BELLOTA	--	1948-	DWR	4- 2-58	20.7	15,400(E)	12-25-71	7.87	2,030
STOCKTON DIVERTING CANAL AT STOCKTON	--	1944-	DWR	4- 4-58	17.1(E)	11,400(E)	12-25-71	8.62	1,650
CALAVERAS RIVER NEAR STOCKTON	--	1958-	DWR	1- 6-65	12.6	760(E)	12-26-71	4.47	70
BEAR CREEK NEAR LOCKEFORD	48	1930-	USGS	4- 3-58	15.1	2,930	12-25-71	10.92	480
COLE CREEK NEAR SALT SPRINGS DAM	20	1927-42 1943-	USGS	12-23-64	10.2	6,140	5-14-72	3.55	540
SOUTH FORK MOKELUMNE RIVER NEAR WEST POINT	75	1933-	USGS	12-23-55	14.6(A,C)	6,920	12-25-71	5.78	870
MOKELUMNE RIVER NEAR MOKELUMNE HILL	544	1901-	USGS	12- 3-50	18.5	33,700	6 -2-72	5.77	2,700
MOKELUMNE RIVER AT WOODBRIDGE	661	1924-	USGS	11-22-50	29.6	27,000	10-30-71	13.64	1,730
MOKELUMNE RIVER NR THORNTON(DENSON FERRY)	2045	1911-	DWR-NOAA	12-24-55	14.0(C)	- -(D)	12-27-71	5.77	- -(D)
DRY CREEK NEAR GALT	329	1926-33 1944-	USGS-DWR	4- 3-58	15.3	24,000	12-25-71	12.01	2,300
NORTH FORK COSUMNES RIVER NEAR EL DORADO	205	1911-41 1948-	USGS	12-23-55	14.8	15,000	4-13-72	4.71	800
MIDDLE FORK COSUMNES RIVER NEAR SOMERSET	107	1957-	USGS	2- 1-63 2- 1-63	16.2 18.4(A)	11,800 - -	STATION DISCONTINUED		
SOUTH FORK COSUMNES RIVER NEAR RIVER PINES	64	1957-	USGS	2- 1-63	10.9	5,540	12-25-71	3.52	650
COSUMNES RIVER AT MICHIGAN BAR	536	1907-	USGS-DWR	12-23-55 3- -07	14.6 16.3(A)	42,000 - -	12-25-71	6.40	3,840
COSUMNES RIVER AT MCCONNELL	724	1941-	USGS	12-23-55	46.3	54,000	12-25-71	38.97	4,170
TULARE LAKE BASIN									
TULE RIVER NEAR SPRINGVILLE	247	1957-	USGS	12- 6-66	17.7(A,C)	47,600	12-26-71	4.77	390(E)
TULE RIVER BELOW SUCCESS DAM	393	1953-	USGS	12-23-55 11-19-50	21.7(C) 26.0(A,C)	27,000 32,000(M)	7-22-72	5.75	420(R)
KAWEAH RIVER AT THREE RIVERS	414	1958-	USGS	12- 5-66 12- 5-66	16.7 17.0(A)	73,000 - -	6 -6-72	5.73	1,120
KINGS RIVER BELOW NORTH FORK	1342	1951-	USGS	12-23-55	23.1	85,200	6 -4-72	7.39	5,330(R)
BUENA VISTA LAKE BASIN									
KERN RIVER AT KERNVILLE	1004	1905-12 1953-	USGS	12- 6-66	19.3(A)	74,000	6 -9-72	4.95	1,100

STREAM AND STATION	DRAINAGE AREA IN SQ MILES	PERIOD OF RECORD	SOURCE OF RECORD	PREVIOUS MAXIMUM OF RECORD			1971-1972 WATER YEAR		
				DATE	STAGE IN FEET	DISCHARGE IN CFS	DATE	STAGE IN FEET	DISCHARGE IN CFS
NORTHERN LAHONTAN AREA									
HONEY LAKE BASIN									
[illegible] CREEK NEAR SUSANVILLE	90	1950-	USGS	2- 1-63	5.6	320	1-[illegible]-72	4.20	290
SUSAN RIVER AT SUSANVILLE	184	1917-21 1950-	USGS	12-22-64	7.3	5,100	2-[illegible]-72	4.64	490
PYRAMID AND WINNEMUCCA LAKES BASIN									
LITTLE TRUCKEE RIVER ABOVE BOCA RESERVOIR NEAR BOCA	146	1903-10 1939-	USGS	2- 1-63	9.0	13,300	5 -6-72	[illegible]	700
TRUCKEE RIVER AT FARAD	932	1899-	USGS	11-21-50	14.5(A)	17,500	5-16-72	4.43	1,500
CARSON RIVER BASIN									
EAST FORK CARSON RIVER BELOW MARKLEEVILLE CREEK	276	1960-	USGS	1-31-63	10.2	15,100	5-31-72	4.66	1,760
WEST FORK CARSON RIVER AT WOODFORDS	66	1900-07 1938-	USGS	2- 1-63	9.0	4,890	5 -3-72	2.82	590
WALKER LAKE BASIN									
WEST WALKER RIVER BELOW LITTLE WALKER RIVER NEAR COLEVILLE	160	1938-	USGS	11-20-50	8.1	6,220	5-31-72	4.42	1,620
EAST WALKER RIVER NEAR BRIDGEPORT	359	1911-14 1921-	USGS	6-19-63	4.6	1,390	3 -4-72	2.24	340
SOUTHERN LAHONTAN AREA									
MOJAVE RIVER BASIN									
MOJAVE RIVER AT LOWER NARROWS NEAR VICTORVILLE	514	1899-06 1930-	USGS	3- 2-38	[illegible].7	70,600	12-[illegible]-71	5.8[illegible]	2,440
MOJAVE RIVER AT BARSTOW	1290	1930-	USGS	3- 3-38	8.6	64,300	12-26-71	[illegible].94	430
MOJAVE RIVER AT AFTON	2120	1929-32 1952-	USGS	1-26-69	10.4	18,000	8-[illegible]-72	8.4[illegible]	5, 00(E)

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